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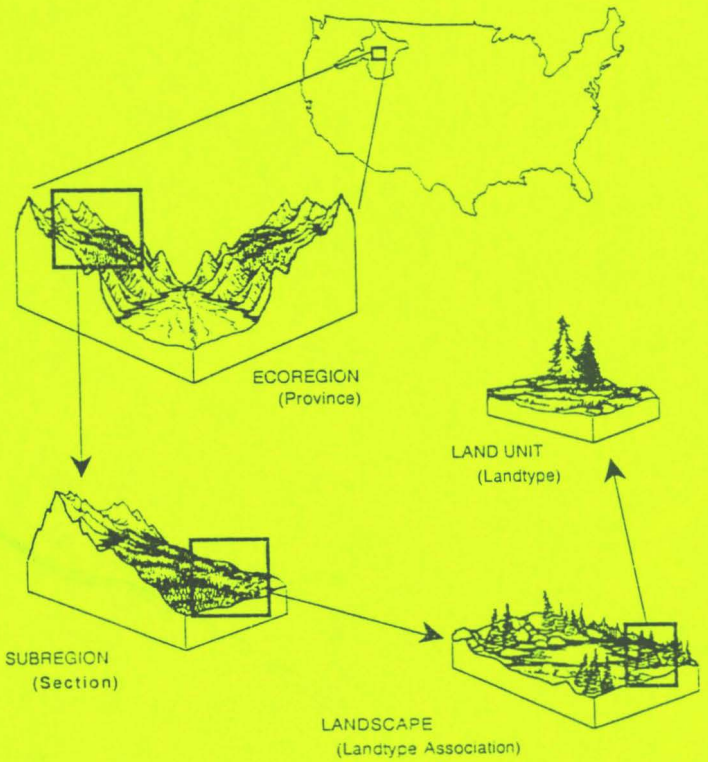
ECOLOGICAL UNIT INVENTORY

OF THE

TARGHEE NATIONAL FOREST, IDAHO

INTERIM REPORT #3

MAY 1995



United States Department of Agriculture
Forest Service

In cooperation with USDA, Soil Conservation Service, and
University of Idaho, College of Agriculture

DRAFT

SUBJECT TO REVISION

ECOLOGICAL UNIT INVENTORY OF THE TARGHEE NATIONAL FOREST, IDAHO

INTERIM REPORT #3

Ashton, Island Park and Dubois Districts

May, 1995

By
Terry S. Bowerman, Soil Scientist, USDA Forest Service
Terry L. Craigg, Soil Scientist, USDA Forest Service
Jim Dorr, Soil Scientist, USDA Forest Service
Klara Varga, Botanist, USDA Forest Service
Judy Warrick, Ecologist, USDA Forest Service

Field work by
Terry S. Bowerman
Terry L. Craigg
Marti Crane
Jim Dorr
Sarah Leahy
Kaylene Monson
Klara Varga
Dick Welch

Cooperators
United States Department of Agriculture, Forest Service
United States Department of Agriculture, Soil Conservation Service
University of Idaho, College of Agriculture

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TARGHEE NATIONAL FOREST

IDENTIFICATION LEGEND

05/10/95

1000 PICO/VASC Islandpark - PSME/SYALPotrmound - PICO/ARTRV Spliten complex

1046 PICO/ARTRV Vadnais -Rock outcrop complex

1050 PSME/CARU,CARU Cherpi, cindery substratum, dry and ABLA/VAGL,VASC Cherpi, cindery substratum, moist

1110 ARTRV/FEID Raynoldson

1118 see 1123

1123 ABLA/CARU,CARU Hopburn - PICO/ARTRV Vadnais - Rock outcrop complex

1126 ARNO4/AGSP Simeroi

1127 ARTRW8/ARARA Simeroi, cool

1128 ARTRV/FEID Monida - ARTRV/FEID Zeale complex

1129 PIFL2/HEKI Fritz - PSME/JUCO6 Gany association

1130 Alpine Sedge Meadow Fritz, high elevation

1131 ARARA/FEID Mountainboy

1133 PSME/ARTRV Meegero - ARTRV/FEID Monida complex

1140 ABLA/THOC Nearl

1144 ABLA/SPBE2 Koffgo, dry

1145 ARTRV/FEID Monida - ARTRV/FEID Zeebar complex

1146 ARTRV/FEID Zeebar

1147 ARTRV/FEID Zeebar - ARTRV/SYOR2/FEID Zeebar, cool complex

1148 PSME/CARU,CARU Ezbin

1149 PSME/CARU,CARU Sedgway

1150 ABLA/CARU,CARU Rhylow, warm - ABLA/CARU,CARU Fitzwil, warm association

1154 PSME/JUCO6 Pikaden - PSME/SYOR2 Pikaden, warm - Rubble land association

1157 see 1204

1172 PSME/ACGL Kitchell - ABLA/ACGL Kitchell, humid association

1203 see 1204

1204 PSME/ARTRV Povey

1222 ABLA/ACGL Lag, humid - PSME/SYAL Lag association

1224 ABLA/VAGL,VASC Koffgo, cool - ABLA/VAGL,VASC Huckridge, humid complex

1225 PIAL Lasac - ABLA Castan complex

1228 PSME/CARU,CARU Nopla - PSME/CARU,CARU Hooter complex

1230 PSME/SPBE2 Lasac, warm - ABLA/CARU,CARU Koffgo, warm complex

1250 PSME/ARTRV Povey

1270 ABLA/Meadow Mosaic Rhylow, high elevation - Rock outcrop complex

1280 Rubble land - Depauperate Alpine Forb Meadow Typic Cryochrepts - Rock outcrop complex

1302 see 1307

1307 PSME/VAGL Huckridge

1313 ARTRV/FEID Nurkey

1400 ARTRV/FEID Trude

1401 ARTRV/FEID Trude - ABLA/CACA4,CACA4 Bootjack association

1410 PSME/SYAL Cherpi - PSME/ARTRV Skyway complex

1430 PSME/ARTRV Skyway

1506 PSME/SYAL Lag, till substratum

1516 ABLA/VAGL,VASC Winegar

1518 ABLA/VASC,CARU Bradco

1570 ABLA/VASC,VASC Dashiki - PIAL/CARO5,PICO Lasac, dry association

1573 ABLA/VASC Oleo - PIAL/CARO5,PICO Lasac, dry association

1575 ABLA/CARU,CARU Koffgo, warm - ABLA/VAGL,VAGL Koffgo, humid complex

1576 ABLA/Meadow Mosaic Fitzwil, high elevation

1580 ABLA/VAGL,VASC Nopla, till substratum

1585 ABLA/VASC,CARU Rhylow

1592 PSME/SYAL Lag

1594 ABLA/VAGL,VAGL Koffgo, humid

1595 ABLA/VAGL,VASC Koffgo, cool

1597 ABLA/SPBE2 Koffgo, dry

1700 ABLA/VASC,CARU Koffgo

1720 ABLA/VAGL,VASC Flatstone - ABLA/VASC,CARU Fitzwil - ABLA/VASC,CARU Koffgo complex

1730 ABLA/VASC,CARU Koffgo - PICO Perfa association

1760 ARTRV/FEID Fourme

2000 DECE Paleboralfs, wet

2020 Salix/Graminoid Chickreek - Salix/Graminoid Tepete complex

2040 PICO Perfa - PICO Stamp, dry - ABLA/CACA4,CACA4 Bootjack association

2070 DECE Stamp

2606 Salix/Graminoid Cryaquolls and Salix/Graminoid Cryaquolls, poorly drained

2608 ABLA/CACA4,CACA4 Bootjack and Salix/Graminoid Chickreek, flooded

2609 PIEN Cryaquolls, cobbly substratum and ABLA/CACA4,CACA4 Cryaquolls, cool

SCS-SOILS-37A
3-75

U.S. DEPARTMENT OF AGRIC
SOIL CONSERVATION

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

Soil Survey Area: _____
State: _____

Date: _____

DESCRIPTION	SYMBOL

CULTURAL FEATURES

BOUNDARIES

National, state, or province

County or parish

Minor civil division

Reservation (national forest or park, state forest or park, and large airport)

Land grant

Limit of soil survey (label)

Field sheet matchline & neatline

AD HOC BOUNDARY (label)

Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNERS (sections and land grants)

ROADS

Divided (median shown if scale permits)

County, farm or ranch

Trail

ROAD EMBLEMS & DESIGNATIONS

Interstate 66

Federal 287

State 52

Other 398

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

Without road

With road

With railroad

DAMS

Large (to scale)

Medium or small

PITS

Gravel pit

Mine or quarry

CULTURAL FEATURES (cont.)

MISCELLANEOUS CULTURAL FEATURES

Farmstead, house (omit in urban areas)

Church

School

Indian mound (label)

Located object (label)

Tank (label)

Wells, oil or gas

Windmill

Kitchen midden

WATER FEATURES

DRAINAGE

Perennial, double line

Perennial, single line

Intermittent

Drainage end

Canals or ditches

Double - line (label) CANAL

Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

Perennial water w

Intermittent intermittent int

MISCELLANEOUS WATER FEATURES

Marsh or swamp

Spring

Well, artesian

Well, irrigation

Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SOIL SYMBOLS

ESCARPMENTS CeA Fo

Bedrock (points down slope)

Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown) S

MISCELLANEOUS

Blowout

Clay spot

Gravelly spot

Gumbo, slick or scabby spot (sodic)

Dumps and other similar non soil areas

Prominent hill or peak

Rock outcrop (includes sandstone and shale)

Saline spot

Sandy spot

Severely eroded spot

Slide or slip (tips point upslope)

Stony spot, very stony spot

RECOMMENDED AD HOC SOIL SYMBOLS

SOIL CLASSIFICATION LEGEND

Soil Name	Classification
Bootjack	Fine-loamy over sandy or sandy skeletal, mixed Aeric Cryaquepts
Bradco	Ashy Humic Vitricryands
Castan	Ashy-skeletal Humic Vitricryands
Cherpi	Ashy-skeletal Vitrandic Cryoborolls
Chickreek	Fine-silty over sandy or sandy-skeletal, mixed, nonacid Typic Cryaquents
Cryaquolls	Cryaquolls
Dashiki	Ashy Typic Vitricryands
Ezbin	Loamy-skeletal, mixed Argic Cryoborolls
Fitzwil	Loamy-skeletal, mixed Cryic Paleborolls
Flatstone	Loamy-skeletal, mixed Typic Paleboralfs
Fourme	Loamy-skeletal, mixed Argic Cryoborolls
Fritz	Loamy-skeletal, carbonatic Calcic Cryoborolls
Gany	Loamy-skeletal, mixed Calcic Cryoborolls
Hooter	Fine-loamy, mixed Cryic Paleborolls
Hopburn	Fine-loamy, mixed Typic Cryoboralfs
Huckridge	Fine-silty, mixed Typic Paleboralfs
Islandpark	Coarse-silty, mixed Typic Paleboralfs
Kitchell	Loamy-skeletal, carbonatic Calcic Pachic Cryoborolls
Koffgo	Loamy-skeletal, mixed Dystric Cryochrepts
Lag	Loamy-skeletal, mixed Typic Cryoborolls
Lasac	Ashy-skeletal Vitrandic Cryochrepts
Meegero	Loamy-skeletal, carbonatic Calcic Pachic Cryoborolls
Monida	Fine-loamy, mixed Argic Cryoborolls
Mountainboy	Loamy-skeletal, carbonatic, shallow Duric Cryoborolls
Nearl	Fine, montmorillonitic Aquic Cryoborolls

SOIL CLASSIFICATION LEGEND cont.

Soil Name	Classification
Nopla	Fine-loamy, mixed Cryic Paleborolls
Nurkey	Loamy-skeletal, mixed Argic Cryoborolls
Oleo	Ashy Alfic Vitricryands
Paleboralfs	Coarse-silty, mixed Oxyaquic Paleboralfs
Perfa	Sandy, mixed Oxyaquic Cryochrepts
Pikaden	Sandy-skeletal, mixed Typic Cryochrepts
Potrmound	Loamy-skeletal, mixed Typic Cryumbrepts
Povey	Loamy-skeletal, mixed Pachic Cryoborolls
Raynoldson	Loamy-skeletal, mixed Calic Pachic Cryoborolls
Rhylow	Loamy-skeletal, mixed Typic Cryumbrepts
Sedgway	Loamy-skeletal, mixed Boralfic Cryoborolls
Simeroi	Loamy-skeletal, carbonatic, frigid Xeric Haplocalcids
Skyway	Coarse-loamy, mixed Pachic Cryoborolls
Spliten	Loamy, mixed Lithic Cryoborolls
Stamp	Coarse-loamy, mixed Aquic Cryochrepts
Tepete	Loamy, mixed Euic Terric Borohemists
Trude	Sandy-skeletal, mixed Dystric Cryochrepts
Typic Cryochrept s	Typic Cryochrepts
Vadnais	Fine-loamy, mixed Argic Pachic Cryoborolls
Winegar	Ashy Typic Vitricryands
Zeale	Loamy-skeletal, carbonatic Calcic Cryoborolls
Zeebar	Loamy-skeletal, mixed Argic Cryoborolls

TABLE OF HABITAT TYPES, COMMUNITY TYPES AND COMMUNITIES

CODE	SCIENTIFIC NAME	COMMON NAME
ABLA	Abies lasiocarpa/Vaccinium globulare h.t., Vaccinium scoparium phase or Abies lasiocarpa/Vaccinium scoparium h.t., Vaccinium scoparium or Calamagrostis rubescens phases	subalpine fir/blue huckleberry h.t., grouse whortleberry phase or subalpine fir/grouse whortleberry h.t., grouse whortleberry or pinegrass phases
ABLA/ACGL	Abies lasiocarpa/Acer glabrum h.t.	subalpine fir/Rocky Mountain maple h.t.
ABLA/ACRU2	Abies lasiocarpa/Actea rubra h.t.	subalpine fir/red baneberry h.t.
ABLA/ARCO6,ARCO6	Abies lasiocarpa/Arnica cordifolia h.t., Arnica cordifolia phase	subalpine fir/heartleaf arnica h.t., heartleaf arnica phase
ABLA/CACA4,CACA4	Abies lasiocarpa/Calamagrostis canadensis h.t., Calamagrostis canadensis phase	subalpine fir/bluejoint h.t., bluejoint phase
ABLA/CAGE2	Abies lasiocarpa/Carex geyeri h.t.	subalpine fir/elk sedge h.t.
ABLA/CARU,CARU	Abies lasiocarpa/Calamagrostis rubescens h.t., Calamagrostis rubescens phase	subalpine fir/pinegrass h.t., pinegrass phase
ABLA/Meadow Mosaic	Abies lasiocarpa/Mountain meadow mosaic	subalpine fir/mountain meadow mosaic
ABLA/RIMO2,PIAL	Abies lasiocarpa/Ribies montigenum h.t., Pinus albicaulis phase	subalpine fir/snow prickly currant h.t., whitebark pine phase
ABLA/SPBE2	Abies lasiocarpa/Spiraea betulifolia h.t.	subalpine fir/white spirea h.t.
ABLA/THOC	Abies lasiocarpa/Thalictrum occidentale h.t.	subalpine fir/western meadowrue h.t.
ABLA/VAGL,VAGL	Abies lasiocarpa/Vaccinium globulare h.t., Vaccinium globulare phase	subalpine fir/blue huckleberry h.t., blue huckleberry phase
ABLA/VAGL,VASC	Abies lasiocarpa/Vaccinium globulare h.t., Vaccinium scoparium phase	subalpine fir/blue huckleberry h.t., grouse whortleberry phase
ABLA/VAGL-SPBE2	Abies lasiocarpa/Vaccinium globulare h.t., Vaccinium globulare phase or Abies lasiocarpa/Spirea Betulifolia h.t.	subalpine fir/blue huckleberry h.t., blue huckleberry phase or subalpine fir/white spirea h.t.
ABLA/VASC	Abies lasiocarpa/Vaccinium scoparium h.t., Vaccinium scoparium or Calamagrostis rubescens phases	subalpine fir/grouse whortleberry h.t., grouse whortleberry or pinegrass phases
ABLA/VASC,CARU	Abies lasiocarpa/Vaccinium scoparium h.t., Calamagrostis rubescens phase	subalpine fir/grouse whortleberry h.t., pinegrass phase
ABLA/VASC,PIAL	Abies lasiocarpa/Vaccinium scoparium h.t., Pinus albicaulis phase	subalpine fir/grouse whortleberry h.t., whitebark pine phase
ABLA/VASC,VASC	Abies lasiocarpa/Vaccinium scoparium h.t., Vaccinium scoparium phase	subalpine fir/grouse whortleberry h.t., grouse whortleberry phase
Alpine sedge meadow	Alpine sedge meadow communities	
ARARA/AGSP	Artemisia arbuscula ssp. arbuscula/Agropyron spicatum h.t.	gray low sagebrush/bluebunch wheatgrass h.t.
ARARA/FEID	Artemisia arbuscula ssp. arbuscula/Festuca idahoensis h.t.	gray low sagebrush/Idaho fescue h.t.
ARNO4/AGSP	Artemisia nova/Agropyron spicatum h.t.	black sagebrush/bluebunch wheatgrass h.t.
ARTRT/AGSP	Artemisia tridentata ssp. tridentata/Agropyron spicatum h.t.	basin big sagebrush/bluebunch wheatgrass h.t.
ARTRV/AGSP	Artemisia tridentata ssp. vaseyana/Agropyron spicatum h.t.	mountain big sagebrush/bluebunch wheatgrass h.t.
ARTRV/BRCA5	Artemisia tridentata ssp. vaseyana/Bromus carinatus h.t.	mountain big sagebrush/California brome h.t.
ARTRV/FEID	Artemisia tridentata ssp. vaseyana/Festuca idahoensis h.t.	mountain big sagebrush/Idaho fescue h.t.
ARTRV/SYOR2/AGSP	Artemisia tridentata ssp. vaseyana/Symphoricarpos orephilus/Agropyron spicatum h.t.	mountain big sagebrush/whortleleaf snowberry/bluebunch wheatgrass h.t.
ARTRV/SYOR2/CAGE2	Artemisia tridentata ssp. vaseyana/Symphoricarpos oreophilus/Carex geyeri h.t.	mountain big sagebrush/whortleleaf snowberry/elk sedge h.t.
ARTRV/SYOR2/FEID	Artemisia tridentata ssp. vaseyana/Symphoricarpos oreophilus/Festuca idahoensis h.t.	mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t.

TABLE OF HABITAT TYPES, COMMUNITY TYPES AND COMMUNITIES

CODE	SCIENTIFIC NAME	COMMON NAME
ARTRW8/AGSP	Artemisia tridentata ssp. wyomingensis/Agropyron spicatum h.t.	Wyoming big sagebrush/bluebunch wheatgrass h.t.
ARTRW8/ARARA	Artemisia tridentata ssp. wyomingensis/Agropyron spicatum h.t. and Artemisia arbuscula ssp. arbuscula/Agropyron spicatum h.t. ecotone	Wyoming big sagebrush/bluebunch wheatgrass h.t and gray low sagebrush/bluebunch wheatgrass h.t. ecotone
DECE	Deschampsia cespitosa c.t.	tufted hairgrass c.t.
Depauperate alpine forb meadow	Depauperate alpine forb meadow communities	
Krummholz	Krummholz communities	Krummholz communities
PIAL	Pinus albicaulis/Carex geyeri h.t. or Pinus albicaulis/Vaccinium scoparium h.t.	whitebark pine/elk sedge h.t. or whitebark pine/grouse whortleberry h.t.
PIAL/CARO5,CARO5	Pinus albicaulis/Carex rossii h.t., Carex rossii phase	whitebark pine/Ross' sedge h.t., Ross' sedge phase
PIAL/CARO5,PICO	Pinus albicaulis/Carex rossii h.t., Pinus contorta phase	whitebark pine/Ross' sedge h.t., lodgepole pine phase
PICO	Pinus contorta/Calamagrostis rubescens c.t., Pinus contorta/Carex geyeri c.t. or Pinus contorta/vaccinium scoparium c.t.	lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., or lodgepole pine/grouse whortleberry c.t.
PICO/ARTRV	Populus tremuloides-Pinus contorta/Symphoricarpos oreophilus c.t. and Artemisia tridentata ssp. vaseyana/Festuca idahoensis h.t. ecotone	quaking aspen-lodgepole pine/whortleleaf snowberry c.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
PICO/CAGE2	Pinus contorta/Carex geyeri c.t.	lodgepole pine/elk sedge c.t.
PICO/CARU	Pinus contorta/Calamagrostis rubescens c.t.	lodgepole pine/pinegrass c.t.
PICO/VASC	Pinus contorta/Vaccinium scoparium c.t.	lodgepole pine/grouse whortleberry c.t.
PIEN	Picea engelmannii/Equisetum arvense h.t. or Picea engelmannii/Galium triflorum h.t.	Engelmann's spruce/field horsetail h.t. or Engelmann's spruce/fragrant bedstraw h.t.
PIEN/EQAR	Picea engelmannii/Equisetum arvense h.t.	Engelmann's spruce/field horsetail h.t.
PIEN/JUCO6	Picea engelmannii/Juniperus communis h.t.	Engelmann's spruce/common juniper h.t.
PIFL2/FEID	Pinus flexilis/Festuca idahoensis h.t.	limber pine/Idaho fescue h.t.
PIFL2/HEKI	Pinus flexilis/Hesperchloa kingii h.t.	limber pine/spike fescue h.t.
PIFL2/JUCO6	Pinus flexilis/Juniperus communis h.t.	limber pine/common juniper h.t.
POTR5/AMAL2-SYOR2/CARU	Populus tremuloides/Amelanchier alnifolia-Symphoricarpos oreophilus/Calamagrostis rubescens c.t.	quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/pinegrass c.t.
POTR5/SYOR2/CARU	Populus tremuloides/Symphoricarpos oreophilus/Calamagrostis rubescens c.t.	quaking aspen/whortleleaf snowberry/pinegrass c.t.
POTR5/SYOR2/POPR	Populus tremuloides/Symphoricarpos oreophilus/Poa pratensis c.t.	quaking aspen/whortleleaf snowberry/Kentucky bluegrass c.t.
PSME/ACGL	Pseudotsuga menziesii/Acer glabrum h.t.	Douglas-fir/Rocky Mountain maple h.t.
PSME/ARCO6,ARCO6	Pseudotsuga menziesii/Arnica cordifolia h.t., Arnica cordifolia phase	Douglas-fir/heartleaf arnica h.t., heartleaf arnica phase
PSME/ARTRV	Pseudotsuga menziesii/Symphoricarpos oreophilus h.t. and Artemisia tridentata ssp. vaseyana/Festuca idahoensis h.t. ecotone	Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
PSME/BERE,SYOR2	Pseudotsuga menziesii/Berberis repens h.t., Symphoricarpos oreophilus phase	Douglas-fir/Oregongrape h.t., whortleleaf snowberry phase
PSME/CARU,CARU	Pseudotsuga menziesii/Calamagrostis rubescens h.t., Calamagrostis rubescens phase	Douglas-fir/pinegrass h.t., pinegrass phase
PSME/FEID	Pseudotsuga menziesii/Festuca idahoensis h.t.	Douglas-fir/Idaho fescue h.t.
PSME/JUCO6	Pseudotsuga menziesii/Juniperus communis	Douglas-fir/common juniper h.t.
PSME/SPBE2	Pseudotsuga menziesii/Spirea betulifolia h.t., Calamagrostis rubescens or Spirea betulifolia phases	Douglas-fir/white spirea h.t., pinegrass or white spirea phases

TABLE OF HABITAT TYPES, COMMUNITY TYPES AND COMMUNITIES

CODE	SCIENTIFIC NAME	COMMON NAME
PSME/SPBE2,CARU	Pseudotsuga menziesii/Spiraea betulifolia h.t., Calamagrostis rubescens phase	Douglas-fir/white spirea h.t., pinegrass phase
PSME/SYAL	Pseudotsuga menziesii/Symphoricarpos albus h.t.	Douglas-fir/common snowberry h.t.
PSME/SYOR2	Pseudotsuga menziesii/Symphoricarpos oreophilus h.t.	Douglas-fir/whortleleaf snowberry h.t.
PSME/VAGL	Pseudotsuga menziesii/Vaccinium globulare h.t.	Douglas-fir/blue huckleberry h.t.
PSME/VASC	Pseudotsuga menziesii/Vaccinium scoparium h.t.	Douglas-fir/grouse whortleberry h.t.
Salix/forb	Salix spp./mesic forb dominated communities	willow/mesic forb dominated communities
Salix/graminoid	Salix spp./graminoid dominated communities	willow/grass or sedge dominated communities

1000 -- PICO/VASC Islandpark - PSME/SYAL Potrmound - PICO/ARTRV Spliten complex

A low relief caldera floor in the forested zone is commonly represented. The topography is characterized by an irregular mosaic of pressure ridges and swales with very short, undulating to rolling slopes. Relief between ridgecrests and swales is less than 20 feet. Surface drainage features are commonly absent.

Map Unit Setting
Subsection: Island Park
Position on the landscape: caldera floor
Elevations: 5900 to 6400 feet
Average annual precipitation: 24 inches
Average annual air temperature: 38 degrees F.
Geology: volcanic

Map Unit Composition
60 percent - PICO/VASC Islandpark ecological type
20 percent - PSME/SYAL Potrmound ecological type
15 percent - PICO/ARTRV Spliten ecological type
5 percent - contrasting inclusions

PICO/VASC Islandpark

Setting
Slopes: 0 to 8 percent
Landscape position: sideslopes and swales

Vegetation Features
Potential natural vegetation: lodgepole pine/grouse whortleberry c.t.
Present vegetation: The lodgepole pine/elk sedge c.t., lodgepole pine/pinegrass c.t., lodgepole pine/grouse whortleberry c.t., and lodgepole pine/non-native grass communities are supported in plantations. Clearcut and scarified areas commonly support communities dominated by non-native grasses or elk sedge.
Timber yield capability class: moderate

Soil Features
Name: Islandpark
Classification: Coarse-silty, mixed Typic Paleboralfs
Parent material: loess
Typical profile:
0 to 6 inches - grayish brown silt loam
6 to 51 inches - very pale brown silt loam
51 to 65 inches - very pale brown loam
65 to 75 inches - brown clay loam
75 inches - hard basalt bedrock
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 3.5 inches
Available water capacity, surface to 60 inches: about 9 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.32
T factor: 5

PSME/SYAL Potrmound

Setting
Slopes: 4 to 35 percent
Landscape position: ridges and sideslopes

Vegetation Features
Potential natural vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The Douglas-fir/common snowberry h.t. is present. The quaking aspen-lodgepole pine/whortleleaf snowberry and quaking aspen-Douglas-fir/whortleleaf snowberry c.t.s are commonly supported.
Timber yield capability class: low

Soil Features
Name: Potrmound
Classification: Loamy-skeletal, mixed Typic Cryumbrepts
Parent material: loess and residual rock fragments
Typical profile:
0 to 30 inches - dark grayish brown extremely stony loam
30 to 39 inches - pale brown extremely stony loam
39 inches - hard fractured basalt bedrock
Depth class: moderately deep (20 to 40 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 1.5 inches
Available water capacity, surface to bedrock: about 2.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.05
T factor: 2

PICO/ARTRV Spliten

Setting

Slopes: 0 to 4 percent
Landscape position: ridges and shoulders

Vegetation Features

Potential natural vegetation: quaking aspen-lodgepole pine/whortleleaf snowberry c.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: Communities dominated by mountain big sagebrush or antelope bitterbrush and California brome, prairie Junegrass, Idaho fescue, other native or non-native grasses or weedlike forbs are commonly supported. Widely dispersed seedling through medium sized trees of lodgepole pine occur in some areas.
Timber yield capability class: none

Soil Features

Name: Spliten
Classification: Loamy, mixed Lithic Cryoborolls
Parent material: loess and residual rock fragments
Typical profile:
0 to 3 inches - brown cobbly loam
3 to 12 inches - yellowish brown cobbly loam
12 inches - hard basalt bedrock
Depth class: shallow (less than 20 inches)
Permeability: moderate
Available water capacity, surface to bedrock: about 1.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.24
T factor: 1

Contrasting Inclusions

Inclusion 1

Slope: 0 to 4 percent
Landscape position: ridges, shoulders and sideslopes
Potential Natural Vegetation: lodgepole pine/elk sedge c.t.
Present vegetation: Communities dominated by elk sedge or non-native grasses are commonly supported.
Soils: Soils like Spliten that are 20 to 40 inches deep to bedrock.

Inclusion 2

Slope: 0 to 2 percent
Landscape position: swales
Potential Natural Vegetation: tufted hairgrass c.t.
Present vegetation: Communities dominated by tufted hairgrass, other native or non-native grasses or mesic forbs are commonly supported.
Soils: Soils like Islandpark that are somewhat poorly drained. (Paleboralfs, wet soils)

Inclusion 3

Landscape position: ridges
Soils: Rock outcrops occurring as surface level exposures.

Management and Limitations

PICO/VASC Islandpark

- Establishing tree seedlings is severely limited on the PICO/VASC Islandpark ecological type due to plant competition. The surface layers of the soil have a high available water capacity. Following clearcutting, pinegrass increases without scarification and elk sedge increases with scarification. Both species compete with the tree seedlings.
- Lodgepole pine communities are naturally persistent on this soil due to lodgepole pine's ability to withstand the climatic conditions found on this map unit.
- Revegetating with non-native grasses and shrubs is severely limited on the PICO/VASC Islandpark ecological type because the soil surface layers are too acid.

PSME/SYAL Potrmound

- Shallow excavations and septic tank absorption fields are severely limited on the Potrmound soils because of the depth to bedrock and the soils are too rocky.
- Revegetating cut and fill slopes is severely limited on the PSME/SYAL Potrmound ecological type because the soils are too rocky, are less than 40 inches deep to bedrock and are droughty.
- Revegetating with non-native grasses and shrubs is severely limited on the PSME/SYAL Potrmound ecological type because the soils are droughty and too rocky.
- The use of heavy equipment for woodland or rangeland management is severely limited on the Potrmound soilsbecause the soils are too stony.
- Pond reservoir areas and sewage lagoons are severely limited on the Potrmound soils because of seepage and landscape position.
- Developed recreation sites, foot paths and trails, and off-road vehicle use are severely limited on the Potrmound soils because the soils

are too rocky.
- Many other management activities and uses are severely limited on Potrmound soils because the soils are too stony. These activities and uses include: fencing, structures without basements, soil reconstruction material for drastically disturbed areas and unsurfaced roads and parking areas.
- Tree planting is severely limited on the PSME/SYAL Potrmound ecological type because the soils are too stony.
- Establishing tree seedlings is severely limited on the PSME/SYAL Potrmound ecological type due to seedling mortality. The soils are droughty.
- Quaking aspen growth on the PSME/SYAL potrmound ecological type may be restricted to stands dominated by shrub sized trees because the soils are too rocky.

PICO/ARTRV Spliten
- Tree windthrow hazard is severe on the PICO/ARTRV Spliten ecological type because the soils are shallow to bedrock.
- Many other management activities and uses are severely limited on the Spliten soils because the soils are shallow to bedrock. These activities and uses include: fencing, use of heavy equipment for rangeland or woodland management, developed recreation sites, pond reservoir areas, septic tank absorption fields, shallow excavations, sewage lagoons and ponds, unsurfaced roads and parking areas, structures without basements, and reconstruction materials for drastically disturbed areas.
- Establishing tree seedlings is severely limited on the PICO/ARTRV Spliten ecological type due to seedling mortality. The soils are droughty.
- Revegetating with non-native grasses and shrubs is severely limited on the PICO/ARTRV Spliten ecological type because the soils are droughty and shallow to bedrock.
- Revegetating cut and fill slopes is severely limited on the PICO/ARTRV Spliten ecological type because the soils are shallow to bedrock.

1046 -- PICO/ARTRV Vadnais - Rock outcrop complex

Low relief plains adjacent to the forested zone are commonly supported. The unit occupies the moist end of the shrub steppe zone and is transitional to the forested zone. The topography is characterized by an irregular mosaic of pressure ridges and swales with very short, undulating to rolling slopes. Relief between ridgecrests and swales is less than 20 feet. Surface drainage features are commonly absent.

Map Unit Setting
Subsection: Island Park
Position on the landscape: plains
Elevations: 6400 to 6900 feet
Average annual precipitation: 22 inches
Average annual air temperature: 38 degrees F.
Geology: volcanic

Map Unit Composition
55 percent - PICO/ARTRV Vadnais ecological type
25 percent - rock outcrop
5 percent - contrasting inclusions

PICO/ARTRV Vadnais

Setting
Slopes: 1 to 12 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: quaking aspen-lodgepole pine/whortleleaf snowberry c.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: The mountain big sagebrush/Idaho fescue h.t or communities dominated by mountain big sagebrush or antelope bitterbrush and bluebunch wheatgrass, prairie Junegrass, timber oatgrass or other native or non-native grasses are commonly supported. Widely dispersed seedling through medium sized trees of lodgepole pine occur in some areas.
Timber yield capability class: none

Soil Features
Name: Vadnais
Classification: Fine-loamy, mixed Argic Pachic Cryoborolls
Parent material: local alluvium derived from loess and coarser eolian materials
Typical profile:
0 to 12 inches - brown silt loam
12 to 30 inches - yellowish brown loam
30 inches - vesicular basalt bedrock
Depth class: moderately deep (20 to 40 inches)
Permeability: slow
Available water capacity, surface to 20 inches: about 3.5 inches
Available water capacity, surface to bedrock:

about 5.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.43
T factor: 3

Rock outcrop

Setting
Landscape position: all positions

Vegetation Features
Present vegetation: Dispersed communities dominated by mountain big sagebrush and various native or non-native grasses are commonly supported along fractures of the bedrock.
Timber yield capability class:

Soil Features
Name: rock outcrop
Comments: Rock outcrops on this unit consist of exposed pressure ridges and nearly level flows of basalt.

Contrasting Inclusions

Inclusion 1
Slope: 1 to 12 percent
Landscape position: all positions
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush and various native or non-native grasses are commonly supported.
Soils: Soils like Vadnais that have 5 to 20 percent cobbles, stones or boulders in the surface layers and greater than 35 percent rock fragments in the subsoil layers.
Comments: This inclusion dominantly occurs in the North Antelope Flat area.

Inclusion 2
Slope: 1 to 12 percent
Landscape position: all positions
Potential natural vegetation: quaking aspen-lodgepole pine/whortleleaf snowberry c.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush and various native or non-native grasses are commonly supported. Widely dispersed seedling through medium sized trees of lodgepole pine occur in some areas.
Soils: Soils like Vadnais that are greater than 40 inches deep over hard bedrock.

Inclusion 3
Slope: 1 to 12 percent
Landscape position: all positions
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush and various native or non-native grasses are commonly supported.
Soils: Soils that are less than 20 inches deep over hard bedrock.

Management and Limitations

- Many management activities are limited on this map unit because of the irregular mosaic of soils with rock outcrop. These activities include fencing, the use of heavy equipment for rangeland management, and shallow excavations for pipelines.

PICO/ARTRV Vadnais

- Establishing tree seedlings is severely limited on the PICO/ARTRV Vadnais ecological type due to plant competition and seedling mortality. Grass, forbs and shrubs in the supported communities compete with tree seedlings for available water. In the absence of a timber canopy, droughtiness is increased by winds.
- The potential for soil compaction is high on the Vadnais soils during periods of high soil moisture. Periods of high soil moisture commonly occur in late spring to early summer and in the autumn before the ground freezes. The potential for soil compaction limits off highway vehicle use and heavy equipment use for rangeland management.
- Paths and trails are severely limited on the Vadnais soils because the soils have slow percolation and are erodible.
- Unsurfaced roads are severely limited on the Vadnais soils because the soils have low strength and slow percolation. Mud holes and puddles commonly develop in depressions on unsurfaced roads during snowmelt periods and after large rain events.

1050 -- PSME/CARU,CARU Cherpi, cindery substratum, dry and ABLA/VAGL,VASC Cherpi, cindery substratum, moist

Cinder cones or remnants of cinder cones in the forested zone are commonly represented. The low relief cones have only one dominant aspect. The north facing slopes are cool and moist and the south facing slopes are warm and dry. One or both of the components may occur in any delineation of this unit.

Map Unit Setting
Subsection: Island Park
Position on the landscape: cinder cones
Elevations: 6300 to 7100 feet
Average annual precipitation: 24 inches
Average annual air temperature: 38 degrees F.
Geology: volcanic

PSME/CARU,CARU Cherpi, cindery substratum, dry

Setting
Slopes: 15 to 60 percent
Landscape position: south facing sideslopes

Vegetation Features
Potential natural vegetation:
Douglas-fir/pinegrass h.t., pinegrass phase
Present vegetation: The Douglas-fir/pinegrass h.t. is commonly supported.
Timber yield capability class: low to moderate

Soil Features
Name: Cherpi, cindery substratum, dry
Classification: Ashy-skeletal Vitrandic Cryoborolls
Parent material: local alluvium or colluvium derived from loess and cinders
Typical profile:
1 to 0 inches - forest litter
0 to 6 inches - dark brown loam
6 to 20 inches - dark brown gravelly loam
20 to 40 inches - dark reddish brown extremely gravelly loam
40 to 60 inches - cinders
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 5 inches
Available water capacity, surface to 60 inches: about 7.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.15
T factor: 3

ABLA/VAGL,VASC Cherpi, cindery substratum, moist

Setting
Slopes: 15 to 60 percent
Landscape position: north facing sideslopes

Vegetation Features
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The subalpine fir/blue huckleberry h.t., grouse whortleberry phase is commonly supported.
Timber yield capability class: low to moderate

Soil Features
Name: Cherpi, cindery substratum, moist
Classification: Ashy-skeletal Vitrandic Cryoborolls
Parent material: local alluvium or colluvium derived from loess and cinders
Typical profile:
3 to 0 inches - forest litter
0 to 6 inches - dark brown loam
6 to 20 inches - dark brown gravelly loam
20 to 40 inches - dark brown extremely gravelly loam
40 to 60 inches - cinders
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 5 inches
Available water capacity, surface to 60 inches: about 7.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.15
T factor: 3

Contrasting Inclusions

Inclusion 1
Slope: 4 to 15 percent
Landscape position: south facing footslopes
Potential natural vegetation: subalpinefir/pinegrass h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t. is commonly supported.
Soils: Soils like Cherpi, cindery substratum, dry that have very or extremely gravelly clay loam

textures in the subsoil layers.

Inclusion 2
Slope: 4 to 15 percent
Landscape position: north facing footslopes
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t. is supported.
Soils: Soils like Cherpi, cindery substratum, moist that have dark colored surface layers less than 10 inches thick.

Management and Limitations

- Off-road vehicle use is severely limited in some areas of this map unit because of slope.
- Pond reservoir areas, shallow excavations and structures without basements are severely limited on this map unit because of slope.
- Developed recreation sites are severely limited on this map unit because of slope.
- Revegetating with grass and shrubs and the use of heavy equipment for rangeland or woodland management is severely limited in some areas of this map unit because of slope.

PSME/CARU,CARU Cherpi, cindery substratum, dry

- Establishing Douglas-fir or lodgepole pine seedlings is severely limited on the PSME/CARU,CARU Cherpi, cindery substratum, dry ecological type due to plant competition and increased droughtiness of large openings in the timber canopy. Pinegrass and mountain snowberry increase in the openings of the timber canopy. Elksedge or ceanothus increase after scarification of the understory.

1110 -- ARTRV/FEID Raynoldson

Fan remnants occurring below the forested zone are commonly represented. The unit occupies the moist end of the shrub steppe zone.

Map Unit Setting
Subsection: Island Park
Position on the landscape: fan remnants
Elevations: 6600 to 7400 feet
Average annual precipitation: 22 inches
Average annual air temperature: 37 degrees F.
Geology: calcareous alluvium

Map Unit Composition
85 percent - ARTRV/FEID Raynoldson ecological type
15 percent - contrasting inclusions

ARTRV/FEID Raynoldson

Setting
Slopes: 2 to 15 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. is commonly supported.
Timber yield capability class: none

Soil Features
Name: Raynoldson
Classification: Loamy-skeletal, mixed Calic Pachic Cryoborolls
Parent material: mixed alluvium
Typical profile:
0 to 4 inches - brown gravelly loam
4 to 16 inches - brown gravelly loam
16 to 29 inches - brown very gravelly loam
29 to 44 inches - pale brown extremely gravelly sandy loam
44 to 60 inches - variegated extremely gravelly loamy sand
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 3 inches
Available water capacity, surface to 60 inches: about 5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.24
T factor: 3

Contrasting Inclusions

Inclusion 1
Slope: 2 to 15 percent
Landscape position: all positions
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. is commonly supported.
Soils: Soils like Raynoldson that have less than 35 percent rock fragments in the subsoil layers.

Inclusion 2
Slope: 2 to 15 percent
Landscape position: all positions
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. is commonly supported.
Soils: Soils like Raynoldson that have very gravelly clay loam or very gravelly sandy clay loam textures in the subsoil layers.

Management and Limitations

ARTRV/FEID Raynoldson

- Pond reservoir areas, sewage lagoons and containment ponds are severely limited on the Raynoldson soils because of seepage.
- Shallow excavations are severely limited on the Raynoldson soils because the cut banks collapse.
- Use as soil reconstruction material for drastically disturbed areas is severely limited on the Raynoldson soils because the soils are too sandy.
- Fencing is severely limited on the Raynoldson soils because the soils are too gravelly.

1123 -- ABLA/CARU,CARU Hopburn - PICO/ARTRV Vadnais - Rock outcrop complex

Low relief plains in the forested zone are commonly represented. The unit occupies the dry end of the forested zone and is transitional to the shrub steppe zone. The topography is characterized by an irregular mosaic of pressure ridges and swales with very short, undulating to rolling slopes. Relief between ridgecrests and swales is less than 20 feet. Surface drainage features are commonly absent.

Map Unit Setting
Subsection: Island Park
Position on the landscape: plains
Elevations: 6300 to 6800 feet
Average annual precipitation: 26 inches
Average annual air temperature: 37 degrees F.
Geology: volcanic

Map Unit Composition
35 percent - ABLA/CARU,CARU Hopburn ecological type
35 percent - PICO/ARTRV Vadnais ecological type
15 percent - rock outcrop
15 percent - contrasting inclusions

ABLA/CARU,CARU Hopburn

Setting
Slopes: 1 to 12 percent
Landscape position: sideslopes and swales

Vegetation Features
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t. and a quaking aspen-lodgepole pine/elk sedge c.t. are commonly supported.
Timber yield capability class: moderate

Soil Features
Name: Hopburn
Classification: Fine-loamy, mixed Typic Cryoboralfs
Parent material: local alluvium derived from loess and coarser eolian materials
Typical profile:
1 to 0 inches - forest litter
0 to 3 inches - dark grayish brown silt loam
3 to 21 inches - pale brown silt loam
21 to 45 inches - light yellowish brown loam
45 to 70 inches - light yellowish brown loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 10 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.32
T factor: 5

PICO/ARTRV Vadnais

Setting
Slopes: 1 to 12 percent
Landscape position: ridges and sideslopes

Vegetation Features
Potential natural vegetation: quaking aspen-lodgepole pine/whortleleaf snowberry c.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the mountain

big sagebrush/Idaho fescue h.t., the quaking aspen-lodgepole pine/whortleleaf snowberry c.t., and communities dominated by mountain big sagebrush and bluebunch wheatgrass, prairie Junegrass, timber oatgrass, pinegrass or other native or non-native grasses are commonly supported.

Timber yield capability class: none

Soil Features

Name: Vadnais
Classification: Fine-loamy, mixed Argic Pachic Cryoborolls
Parent material: local alluvium derived from loess and coarser eolian materials
Typical profile:
0 to 12 inches - brown silt loam
12 to 30 inches - yellowish brown loam
30 inches - vesicular basalt bedrock
Depth class: moderately deep (20 to 40 inches)
Permeability: slow
Available water capacity, surface to 20 inches: about 3.5 inches
Available water capacity, surface to bedrock: about 5.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.43
T factor: 3

Rock outcrop

Setting

Landscape position: ridges
Rock outcrops occur as near surface level exposures.

Contrasting Inclusions

Inclusion 1

Slope: 1 to 12 percent
Landscape position: ridges
Potential natural vegetation: quaking aspen-lodgepole pine/whortleleaf snowberry c.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: Communities dominated by mountain big sagebrush or antelope bitterbrush and prairie Junegrass, Kentucky bluegrass, Idaho fescue or weedlike forbs are commonly supported. Widely dispersed seedling through medium sized trees of lodgepole pine occur in some areas.
Soils: Soils that are less than 20 inches deep over hard bedrock. (Spliten soils)

Inclusion 2

Slope: 1 to 12 percent
Landscape position: sideslopes and swales
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t. and a quaking aspen-lodgepole pine/elk sedge c.t. are commonly supported.
Soils: Soils like Hopburn that are 20 to 40 inches deep over bedrock and have 5 to 40 percent rock fragments in the subsoil layers.

Management and Limitations

- Many management activities are limited on this map unit because of the irregular mosaic of rock outcrop. These activities include fencing, the use of heavy equipment for rangeland management, and shallow excavations for pipelines.

ABLA/CARU,CARU Hopburn

- Establishing tree seedlings is severely limited on the ABLA/CARU,CARU Hopburn ecological type due to plant competition. The surface layers of the soil are medium textured and have a high available water capacity. Following clearcutting or fires, pinegrass increases without scarification and elksedge increases with scarification. Both species compete with tree seedlings for space.
- Exposed subsurface layers of the Hopburn soils have a very high potential for soil erosion from water. Exposed conditions may occur on unsurfaced roads, paths and trails.
- The use of heavy equipment for woodland management is severely limited on the ABLA/CARU,CARU Hopburn ecological type because the soils are erodible.
- Paths and trails are severely limited on the Hopburn soils because the soils have a thin surface, and the subsurface layers are erodible.
- Unsurfaced roads are severely limited on the Hopburn soils because the soils have low strength and are erodible.

PICO/ARTRV Vadnais

- Establishing tree seedlings is severely limited on the PICO/ARTRV Vadnais ecological type due to plant competition and seedling mortality. Grass, forbs and shrubs in the supported communities compete with tree seedlings for available water. In the absence of a timber canopy, droughtiness is increased by winds.
- The potential for soil compaction is high on the Vadnais soils during periods of high soil moisture.

Periods of high soil moisture commonly occur in late spring to early summer and in the autumn before in ground freezes. The potential for soil compaction limits off highway vehicle use and heavy equipment use for rangeland management.

- Paths and trails are severely limited on the Vadnais soils because the soils have slow percolation and are erodible.
- Unsurfaced roads are severely limited on the Vadnais soils because the soils have low strength and slow percolation. Mud holes and puddles commonly develop in depressions on unsurfaced roads during snowmelt periods and after large rain events.

1126 -- ARNO4/AGSP Simeroi

Strongly exposed, south facing foothill and mountain sideslopes occurring below the forested zone are commonly represented. The unit occupies the dry end of the shrub steppe zone and represents the more warm and dry positions in the Lemhi-Medicine Lodge subsection. The slopes are lightly dissected by low spur ridges and shallow draws.

Map Unit Setting
Subsection: Lemhi-Medicine Lodge
Position on the landscape: foothills
Elevations: 5800 to 8800 feet
Average annual precipitation: 11 inches
Average annual air temperature: 39 degrees F.
Geology: limestone

Map Unit Composition
85 percent - ARNO4/AGSP Simeroi ecological type
15 percent - contrasting inclusions

ARNO4/AGSP Simeroi

Setting
Slopes: 30 to 50 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: black sagebrush/bluebunch wheatgrass h.t.
Present vegetation: The black sagebrush/bluebunch wheatgrass h.t., curlleaf mountain mahogany/bluebunch wheatgrass community or communities dominated by curlleaf mountain mahogany are commonly supported.
Timber yield capability class: none

Soil Features
Name: Simeroi
Classification: Loamy-skeletal, carbonatic, frigid Xeric Haplocalcids
Parent material: colluvium and local alluvium derived from limestone and loess
Typical profile:
0 to 3 inches - brown very gravelly silt loam
3 to 11 inches - pale brown very gravelly silt loam
11 to 60 inches - very pale brown extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 1.5 inches
Available water capacity, surface to 60 inches: about 3.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.28
T factor: 2

Comments
These are some of the warmer and drier sites in the Lemhi-Medicine Lodge subsection. The present communities are characterized by having few species, minimal cover and a high percentage of bare ground.

Contrasting Inclusions

Inclusion 1
Slope: 30 to 50 percent
Landscape position: north facing sideslopes of low spur ridges
Potential natural vegetation: Wyoming big sagebrush/bluebunch wheatgrass h.t.
Present vegetation: The Wyoming big sagebrush/bluebunch wheatgrass h.t. is commonly supported.
Soils: Soils like Simeroi that are more moist.

Inclusion 2
Slope: 30 to 50 percent
Landscape position: north facing sideslopes of incised drainageways
Potential natural vegetation: Douglas-fir/Idaho fescue h.t.
Present vegetation: The Douglas-fir/Idaho fescue h.t. or a mountain big sagebrush/Idaho

fescue community are commonly supported.
Soils: Soils like Simeroi that are more moist and cool and have dark colored surface layers greater than 7 inches thick.

Inclusion 3
Landscape position: all positions
Present vegetation: Lichens and rock spirea are commonly supported.
Soils: Rock outcrops occurring as surface level exposures to irregular cliffs.

Inclusion 4
Slope: 30 to 50 percent
Landscape position: south facing sideslopes and footslopes of incised drainageways
Potential natural vegetation: basin big sagebrush/bluebunch wheatgrass h.t.
Present vegetation: A mosaic of communities dominated by basin big sagebrush, juniper trees or curlleaf mountain mahogany with bluebunch wheatgrass or basin wild rye in the understory are commonly supported.
Soils: Soils that have greater than 35 percent cobbles, stones or boulders on the surface and throughout the profile in a fine mosaic with rubble land.
Comments: This inclusion is commonly associated with areas having remnant volcanic caps or outcrops of quartzite bedrock.

Inclusion 5
Slope: 30 to 50 percent
Landscape position: south facing sideslopes
Potential natural vegetation: black sagebrush/bluebunch wheatgrass h.t.
Present vegetation: The black sagebrush/bluebunch wheatgrass h.t. is commonly supported.
Soils: Soils like Simeroi that are derived from quartzite and loess and have a neutral reaction (pH) in the surface and upper subsoil layers.
Comments: The black sagebrush/bluebunch wheatgrass communities supported in this inclusion appear to be more drought tolerant than those of the ARNO4/AGSP Simeroi ecological type.

Management and Limitations

- The inclusions of rubble land severely restrict access along portions of the incised drainageways that dissect the unit.

ARNO4/AGSP Simeroi

- The ARNO4/AGSP Simeroi ecological type occupies the more warm and dry positions in the Lemhi-Medicine Lodge subsection. The supported communities are characterized by having few species, low cover and a high percentage of bare ground.

1127 -- ARTRW8/ARARA Simeroi, cool

Fan remnants occurring below the forested zone are commonly represented. The unit occupies the cool, dry end of the shrub steppe zone. The slopes are lightly dissected by shallow, incised drainageways and inset fans.

Map Unit Setting
Subsection: Lemhi-Medicine Lodge
Position on the landscape: fan remnants
Elevations: 5500 to 7400 feet
Average annual precipitation: 11 inches
Average annual air temperature: 38 degrees F.
Geology: limestone

Map Unit Composition
80 percent - ARTRW8/ARARA Simeroi, cool ecological type
20 percent - contrasting inclusions

ARTRW8/ARARA Simeroi, cool

Setting
Slopes: 4 to 20 percent
Landscape position: summits

Vegetation Features
Potential natural vegetation: Wyoming big sagebrush/bluebunch wheatgrass h.t and gray low sagebrush/bluebunch wheatgrass h.t. ecotone
Present vegetation: A mosaic of the Wyoming big sagebrush/bluebunch wheatgrass h.t. and the gray low sagebrush/bluebunch wheatgrass h.t. are present. Communities dominated by spineless horsebrush or threetip sagebrush and bluebunch wheatgrass are also supported.
Timber yield capability class: none

Soil Features
Name: Simeroi, cool
Classification: Loamy-skeletal, carbonatic, frigid Xeric Haplocalcids

Parent material: alluvium derived from limestone and loess
Typical profile:
O to 2 inches - grayish brown gravelly silt loam
2 to 8 inches - brown very gravelly loam
8 to 60 inches - light gray extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 1.5 inches
Available water capacity, surface to 60 inches: about 3.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.15
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 20 to 50 percent
Landscape position: north facing sideslopes of incised drainageways
Potential Natural Vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or gray low sagebrush/Idaho fescue communities are commonly supported.
Soils: Soils like Simeroi, cool that are more moist and have dark colored surface layers greater than 7 inches thick. (Zeale soils)

Inclusion 2
Slope: 20 to 50 percent
Landscape position: south facing sideslopes of incised drainageways
Potential Natural Vegetation: Wyoming big sagebrush/bluebunch wheatgrass h.t.
Present vegetation: The Wyoming big sagebrush/bluebunch wheatgrass h.t. or communities dominated by spineless horsebrush and bluebunch wheatgrass are commonly supported.
Soils: Soils like Simeroi, cool that are warmer.

Inclusion 3
Slope: 4 to 8 percent
Landscape position: summits
Potential Natural Vegetation: gray low sagebrush/bluebunch wheatgrass h.t.
Present vegetation: The gray low sagebrush/bluebunch wheatgrass h.t. or communities dominated by spineless horsebrush and bluebunch wheatgrass are commonly supported.
Soils: Soils that are 10 to 20 inches deep to a cemented hardpan.

Inclusion 4
Slope: 2 to 8 percent
Landscape position: inset fans
Potential Natural Vegetation: basin big sagebrush/bluebunch wheatgrass h.t.
Present vegetation: The basin big sagebrush/bluebunch wheatgrass h.t. or communities dominated by Wyoming big sagebrush or spineless horsebrush and bluebunch wheatgrass are commonly supported.
Soils: Soils like Simeroi, cool that have extremely gravelly loamy coarse sand or coarse sand textures in the subsoil layers.

Management and Limitations

- Communities supporting mosaics of Wyoming big sagebrush and gray low sagebrush are significant as sagegrouse habitat. (Personal observations and experience in Nevada.) {Run this past Timm.}
- The gray low sagebrush/bluebunch wheatgrass h.t. component of this ecotone may be associated with positions where the root zone is saturated by water for a week or more during peak snowmelt periods. These positions may include gentle slopes, subtle basins or benches. The Wyoming big sagebrush/bluebunch wheatgrass h.t. component may be associated with positions that lack this saturation in the root zone. Positions may include stronger slopes and subtle mounds associated with rodent activity.

1128 -- ARTRV/FEID Monida - ARTRV/FEID Zeale complex

Rolling to hilly foothills and fan remnants adjacent to the forested zone are commonly represented. The unit occupies the cold, moist end of the shrub steppe zone. Slopes are lightly dissected by shallow draws and incised drainageways. Ground, latteral and end moraines in mountain valleys are represented in some areas.

Map Unit Setting
Subsection: Lemhi-Medicine Lodge
Position on the landscape: foothills, fan remnants, moraines
Elevations: 6800 to 8400 feet
Average annual precipitation: 16 inches
Average annual air temperature: 38 degrees F.
Geology: limestone

Map Unit Composition
40 percent - ARTRV/FEID Monida ecological type
40 percent - ARTRV/FEID Zeale ecological type
20 percent - contrasting inclusions

ARTRV/FEID Monida

Setting
Slopes: 4 to 20 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. and mountain big sagebrush/bluebunch wheatgrass community are commonly supported. Communities dominated by Idaho fescue or spineless horsebrush and bluebunch wheatgrass are also present.
Timber yield capability class: none

Soil Features
Name: Monida
Classification: Fine-loamy, mixed Argic Cryoborolls
Parent material: local alluvium or colluvium derived from calcareous siltstone, sandstone and loess
Typical profile:
0 to 7 inches - dark grayish brown silt loam
7 to 27 inches - grayish brown silty clay loam
27 to 60 inches - pale yellow loam

Depth class: very deep (greater than 60 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 11 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.32
T factor: 5

ARTRV/FEID Zeale

Setting
Slopes: 4 to 20 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. and mountain big sagebrush/bluebunch wheatgrass community are commonly supported. Communities dominated by Idaho fescue or spineless horsebrush and bluebunch wheatgrass are also present.
Timber yield capability class: none

Soil Features
Name: Zeale
Classification: Loamy-skeletal, carbonatic Calcic Cryoborolls
Parent material: alluvium derived from limestone and loess
Typical profile:
0 to 15 inches - dark grayish brown gravelly silt loam
15 to 60 inches - very pale brown very gravelly loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 3 inches
Available water capacity, surface to 60 inches: about 6.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.24
T factor: 5

Contrasting Inclusions

Inclusion 1
Slope: 4 to 20 percent
Landscape position: all positions
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. is commonly supported.
Soils: Soils like Monida that have greater than 35 percent rock fragments in the subsoil and substratum layers. (Nurkey and Zeebar soils)

Inclusion 2
Slope: 4 to 20 percent

Landscape position: all positions
Potential natural vegetation:
Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. is commonly supported. Widely dispersed seedling through medium sized trees of Douglas-fir are supported in some areas.
Soils: Soils that are 20 to 40 inches deep to substratum layers having silty clay to very cobbly silty clay textures.

Inclusion 3
Slope: 2 to 8 percent
Landscape position: windswept summits and ridges
Potential natural vegetation: gray low sagebrush/Idaho fescue h.t.
Present vegetation: The gray low sagebrush/Idaho fescue h.t. and communities dominated by gray low sagebrush or spineless horsebrush and Sandberg bluegrass or prairie Junegrass are commonly supported.
Soils: Soils like Zeale that are slightly drier.

Inclusion 4
Slope: 4 to 50 percent
Landscape position: north facing sideslopes of draws and incised drainageways
Potential natural vegetation:
Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the Douglas-fir/whortleleaf snowberry h.t. and the mountain big sagebrush/Idaho fescue h.t. is commonly supported. Widely dispersed seedling through medium sized trees of Douglas-fir occur in some areas of shrub dominated communities.
Soils: Soils like Zeale and Monida that are more moist and have dark colored surface layers greater than 16 inches thick.

Inclusion 5
Slope: 30 to 50 percent
Landscape position: south facing sideslopes of draws and incised drainageways
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or mountain big sagebrush/bluebunch wheatgrass communities are commonly supported.
Soils: Zeale soils are represented.

1129 -- PIFL2/HEKI Fritz - PSME/JUCO6 Gany association

Very steep, high relief mountain sideslopes in dry forested zones are represented. The unit commonly occupies all positions in the forested zone. Cool north facing sideslopes and warm south facing sideslopes of canyons deeply incised into the mountain range are common. Sideslopes are lightly to moderately dissected by low spur ridges and shallow draws. Rock outcrops are common on south facing sideslopes.

Map Unit Setting
Subsection: Lemhi-Medicine Lodge
Position on the landscape: mountains
Elevations: 7400 to 9800 feet
Average annual precipitation: 22 inches
Average annual air temperature: 37 degrees F.
Geology: limestone

Map Unit Composition
40 percent - PIFL2/HEKI Fritz ecological type
40 percent - PSME/JUCO6 Gany ecological type
20 percent - contrasting inclusions

PIFL2/HEKI Fritz

Setting
Slopes: 45 to 70 percent
Landscape position: south facing sideslopes

Vegetation Features
Potential natural vegetation: limber pine/spike fescue h.t.
Present vegetation: The limberpine/spike fescue h.t. is dominantly supported. Limberpine/curlleaf mountain mahogany community, mountain big sagebrush/bluebunch wheatgrass community and communities dominated by curlleaf mountain mahogany are supported on mid and lower sideslopes.
Timber yield capability class: low

Soil Features
Name: Fritz
Classification: Loamy-skeletal, carbonatic Calcic Cryoborolls
Parent material: colluvium derived from

limestone and loess
Typical profile:
0 to 4 inches - grayish brown very gravelly loam
4 to 12 inches - brown very gravelly loam
12 to 60 inches - pale brown extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 1.5 inches
Available water capacity, surface to 60 inches: about 3.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.05
T factor: 2

Comments
The limberpine/curlleaf mahogany h.t., mountain big sagebrush/bluebunch wheatgrass community and communities dominated by curlleaf mountain mahogany occurring in this map unit are thought to be seral to the limberpine/spike fescue h.t.

PSME/JUCO6 Gany

Setting
Slopes: 45 to 70 percent
Landscape position: north facing sideslopes

Vegetation Features
Potential natural vegetation: Douglas-fir/common juniper h.t.
Present vegetation: The Douglas-fir/common juniper h.t. is dominantly supported. Douglas-fir/curlleaf mountain mahogany community is supported on the lower eastern sideslopes of mountain ranges.
Timber yield capability class: low

Soil Features
Name: Gany
Classification: Loamy-skeletal, mixed Calcic Cryoborolls
Parent material: colluvium derived from limestone and loess
Typical profile:
2 to 0 inches - forest litter
0 to 9 inches - dark grayish brown extremely gravelly silt loam
9 to 60 inches - pale brown extremely gravelly loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 1.5 inches
Available water capacity, surface to 60 inches: about 3 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.05
T factor: 2

Comments
The Douglas-fir/curlleaf mahogany community occurring in this map unit is thought to be seral to the Douglas-fir/common juniper h.t.

Contrasting Inclusions

Inclusion 1
Slope: 45 to 70 percent
Landscape position: north facing footslopes of incised canyons and north facing sideslopes near upper timberline
Potential natural vegetation: Engelmann's spruce/common juniper h.t.
Present vegetation: The Engelmann's spruce/common juniper h.t. is commonly supported.
Soils: Soils like Gany that are more moist and cool.
Comments: This inclusion progressively increases in extent from south to north.

Inclusion 2
Landscape position: all positions
Present vegetation: Lichens and rock spirea are commonly supported.
Soils: Rock outcrops occurring as surface level exposures, irregular cliffs and fins, and linear cliffs 100 or more feet in height.
Comments: Rock outcrops have the highest occurrence and greatest extent on south facing sideslopes.

Inclusion 3
Landscape position: south facing sideslopes
Soils: Rubble land dominated by pebbles or cobbles.
Comments: Active creep and scree flows are common in areas of rubbleland dominated by pebbles.

Management and Limitations

- Avalanche chutes and runout areas occurring below alpine mountain sideslopes, peaks and ridges are common in draws of this unit. Frequent avalanches are common in these areas.

• Curlleaf mountain mahogany is thought to be a seral species in this map unit. The reasons for this include the following observations:

Limited age data collected in Indian Head Canyon and Coal Kiln Canyon of Birch Creek suggests the age of individual curlleaf mountain mahogany range from 40 to 100 years. The age of the communities supporting these individuals correlates roughly with the beginning of wild fire supression and disturbance associated with the support of mining and milling activities in the area during the late 1800's.

Minimal curlleaf mountain mahogany reproduction was observed in all of the Birch Creek and Medicine Lodge Creek drainages.

Attempts at stimulating curlleaf mountain mahogany reproduction in communities presently supporting curlleaf mountain mahogany have had limited success in this map unit. This limited success suggests that the present stands of curlleaf mountain mahogany are decadent and likely seral to other communities.

Specific conditions needed for establishing curlleaf mountain mahogany seedlings or young curlleaf mountain mahogany communities on this map unit are not understood. Sites that have had recent ground disturbance and supported communities where curlleaf mountain mahogany has sparse or absent may be required. Specific, yet undefined, climatic conditions may be needed.

• Slope severely limits the use of heavy equipment for woodland management on this map unit.

• Revegetating cut and fill slopes is severely limited on this map unit because of the droughty soils.

• Characteristics of landscape positions that are specific to communities supporting curlleaf mountain mahogany and repeatable across the map unit were not discernable. Communities dominated by curlleaf mountain mahogany share positions with limberpine/spike fescue h.t., mountain big sagebrush/bluebunch wheatgrass h.t. and Douglas-fir/common juniper h.t.

1130 -- Alpine Sedge Meadow Fritz, high elevation

Convex, mountain summits occurring above the forested zone are commonly represented. The summits have an irregular microtopography with hummocks and swales (patterned ground).

Map Unit Setting
Subsection: Lemhi-Medicine Lodge
Position on the landscape: mountains
Elevations: 8400 to 10500 feet
Average annual precipitation: 22 inches
Average annual air temperature: 37 degrees F.
Geology: limestone

Map Unit Composition
85 percent - Alpine Sedge Meadow Fritz, high elevation ecological type
15 percent - contrasting inclusions

Alpine sedge meadow Fritz, high elevation

Setting
Slopes: 4 to 30 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: Alpine sedge meadow communities
Present vegetation: Alpine sedge meadow communities forming broad, turflike meadows are commonly supported. Communities dominated by the following species were observed: rock sedge, blackroot sedge, timberline bluegrass, Cusick's bluegrass and Idaho fescue.
Timber yield capability class: none

Soil Features
Name: Fritz, high elevation
Classification: Loamy-skeletal, carbonatic Calcic Cryoborolls
Parent material: local alluvium derived from limestone and loess
Typical profile:
0 to 3 inches - dark grayish brown gravelly silt loam
3 to 12 inches - brown very gravelly silt loam
12 to 60 inches - pale brown extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 1.5 inches
Available water capacity, surface to 60 inches: about 3.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.11

T factor: 2

Comments
The communities of this ecological type commonly form broad, turflike meadows.

Contrasting Inclusions

Inclusion 1
Landscape position: all positions
Present vegetation: Lichens and rock spirea are commonly supported.
Rock outcrops occurring as surface level exposures.

Inclusion 2
Slope: 4 to 15 percent
Landscape position: ridges
Present vegetation: Alpine sedge meadow communities are commonly supported. Communities dominated by the following species were observed: rock sedge, blackroot sedge, timberline bluegrass, Cusick's bluegrass and Idaho fescue.
Soils: Soils like Fritz, high elevation that are more droughty and are 10 to 40 inches deep to hard bedrock.
Comments: This inclusion appears to be more droughty than the Alpine Sedge Meadow Fritz, high elevation ecological type. Communities supported on this inclusion have less total cover than that of the Alpine Sedge Meadow Fritz, high elevation type.

Inclusion 3
Slope: 20 to 40 percent
Landscape position: south facing sideslopes in the lower elevation range of the unit
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. is commonly supported.
Soils: Soils like Fritz, high elevation that are more moist and have dark colored surface layers greater than 16 inches thick.

Inclusion 4
Slope: 15 to 40 percent
Landscape position: north facing sideslopes in the lower elevation range of the unit
Potential natural vegetation: limber pine/Idaho fescue h.t.
Present vegetation: The limber pine/Idaho fescue
h.t. is commonly supported.
Soils: Soils like Fritz, high elevation that are more moist and cool.

Inclusion 5
Slope: 30 to 50 percent
Landscape position: short sideslopes in the upper elevation range of the unit
Present vegetation: Depauperate alpine forb meadow communities are commonly supported. Species dominance varies with geographic area and aspect. South facing slopes support species with more drought tolerance and communities with less cover than north facing sideslopes. Communities dominated by the following species were observed: Hayden's clover, smooth larkspur, Nuttall's sandwort, Tweedy's ivesia, rock sedge, Sandberg bluegrass, Michaux's sagewort, common twinpod, Cusick's giant hyssop, gooseberry currant, and green rabbitbrush.
Soils: Soils like Fritz, high elevation that are more droughty and lack dark colored surface layers. (Typic Cryochrepts soils)

Management and Limitations

Alpine sedge meadow Fritz, high elevation

- Fencing is severely limited on the Alpine Sedge Meadow Fritz, high elevation ecological type because the soils are too gravelly.
- Offroad vehicle use is severely limited on the Alpine Sedge Meadow Fritz, high elevation ecological type because of short growing seasons and episodic (not annual) reproductive seasons.
- Revegetating cut and fill slopes is severely limited on the Alpine Sedge Meadow Fritz, high elevation ecological type because of short growing seasons, episodic (not annual) reproductive seasons and rocky, droughty soils.

1131 -- ARARA/FEID Mountainboy

Windswept summits of remnant, alluvial fan surfaces occurring below the forested zone are commonly represented. The unit occupies the cold, dry end of the shrub steppe zone. Slopes are planar and lack dissection.

Map Unit Setting
Subsection: Lemhi-Medicine Lodge

Position on the landscape: fan remnants
Elevations: 7350 to 7700 feet
Average annual precipitation: 14 inches
Average annual air temperature: 38 degrees F.
Geology: calcareous alluvium

Map Unit Composition
90 percent - ARARA/FEID Mountainboy ecological type
10 percent - contrasting inclusions

ARARA/FEID Mountainboy

Setting
Slopes: 2 to 8 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: gray low sagebrush/Idaho fescue h.t.
Present vegetation: The gray low sagebrush/Idaho fescue h.t. or communities dominated by gray low sagebrush and Sandberg bluegrass or prairie Junegrass are commonly supported.
Timber yield capability class: none

Soil Features
Name: Mountainboy
Classification: Loamy-skeletal, carbonatic, shallow Duric Cryoborolls
Parent material: alluvium derived from limestone and loess
Typical profile:
0 to 6 inches - brown gravelly silt loam
6 to 11 inches - brown gravelly loam
11 to 16 inches - light gray very gravelly loam
16 to 19 inches - light gray weakly cemented extremely gravelly coarse sandy loam
19 to 20 inches - light gray strongly cemented duripan
20 to 60 inches - variegated extremely gravelly loamy coarse sand
Depth class: shallow (less than 20 inches)
Permeability: moderate
Available water capacity, surface to duripan: about 2 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.24
T factor: 1

Contrasting Inclusions

Inclusion 1
Slope: 2 to 8 percent
Landscape position: all positions
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: Communities dominated by rabbitbrush or gray low sagebrush and needleandthread, Sandberg bluegrass or prairie Junegrass are commonly supported.
Soils: Soils like Mountainboy that lack a cemented hardpan. (Zeale soils)
Comments: This inclusion occurs as very subtle mounds that are about 20 feet in diameter. These mounds form a polk-a-dot pattern across the landscape. The early seral stage communities supported on these mounds are associated with persistent rodent activity.

Management and Limitations

ARARA/FEID Mountainboy
- Fencing, shallow excavations and pond reservoir areas are severely limited on the ARARA/FEID Mountainboy ecological type because the soils are shallow to a cemented hardpan.
- Developed recreation sites are severely limited on the ARARA/FEID Mountainboy ecological type because the soils are shallow to a cemented hardpan.

1133 -- PSME/ARTRV Meegero - ARTRV/FEID Monida complex

Foothill and mountain sideslopes adjacent to the forested zone are commonly represented. The unit occupies the cool, moist end of the shrub steppe zone and is transitional to the forested zone. North facing sideslopes are commonly represented at the lower elevation range of the unit. Landscape positions shift to south facing sideslopes at the upper elevation range of the unit. The sideslopes are lightly to moderately dissected by shallow draws and low spur ridges. Active and relic slope failures occur in some areas.

Map Unit Setting
Subsection: Lemhi-Medicine Lodge
Position on the landscape: mountains, foothills
Elevations: 6700 to 9600 feet

Average annual precipitation: 18 inches
Average annual air temperature: 37 degrees F.
Geology: limestone

Map Unit Composition
65 percent - PSME/ARTRV Meegero ecological type
15 percent - ARTRV/FEID Monida ecological type
20 percent - contrasting inclusions

PSME/ARTRV Meegero

Setting
Slopes: 20 to 50 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the mountain big sagebrush/Idaho fescue h.t; mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. or communities dominated by Idaho fescue are commonly supported. Widely dispersed seedling through medium sized trees of Douglas-fir occur in some areas. The Douglas-fir/whortleleaf snowberry h.t. is present on some north facing slopes.
Timber yield capability class: none

Soil Features
Name: Meegero
Classification: Loamy-skeletal, carbonatic Calcic Pachic Cryoborolls
Parent material: local alluvium or colluvium derived from limestone and loess
Typical profile:
0 to 6 inches - dark grayish brown loam
6 to 18 inches - dark grayish brown gravelly loam
18 to 24 inches - light brownish gray extremely gravelly loam
24 to 60 inches - light gray extremely cobbly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.17
T factor: 2

ARTRV/FEID Monida

Setting
Slopes: 20 to 40 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t or communities dominated by Idaho fescue are commonly supported.
Timber yield capability class: none

Soil Features
Name: Monida
Classification: Fine-loamy, mixed Argic Cryoborolls
Parent material: local alluvium or colluvium derived from calcareous siltstone, sandstone and loess
Typical profile:
0 to 7 inches - dark grayish brown silt loam
7 to 27 inches - grayish brown silty clay loam
27 to 60 inches - pale yellow loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 11 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.32
T factor: 5

Contrasting Inclusions

Inclusion 1
Slope: 30 to 50 percent
Landscape position: south facing sideslopes
Potential natural vegetation: mountain big sagebrush/bluebunch wheatgrass h.t.
Present vegetation: The mountain big sagebrush/bluebunch wheatgrass h.t. is commonly supported.
Soils: Soils like Meegero that are slightly drier and have dark colored surface layers less than 16 inches thick.

Inclusion 2
Landscape position: spur ridges and south facing sideslopes
Present vegetation: Lichens and rock spirea are commonly supported.
Soils: Rock outcrops occurring as surface level exposures.

Inclusion 3
Slope: 20 to 50 percent
Landscape position: all positions
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by Idaho fescue are commonly supported.
Soils: Soils like Monida that have greater than 35 percent rock fragments throughout the subsoil layers. (Nurkey soils)

Management and Limitations

- Active and relic slope failures are common in some areas of this unit. The failures are commonly small, slump-earthflows. These failures occur in narrow bands throughout the unit. They may be associated with a fault zone or narrow band of fine textured marine sediments. Many management activities are severely limited in these areas because of slippage.
- The use of heavy equipment for rangeland management is severely limited on this mapping unit because of slope.
- Off road vehicle use is severely limited on this unit because of erodible soils.

PSME/ARTRV Meegero
- Revegetating cut and fill slopes is severely limited on the ARTRV/FEID Meegero ecological type because of the rocky droughy soils.

1140 -- ABLA/THOC Nearl

Mountain basins in the forested zone are commonly represented. The unit occupies the more moist, forested positions in the Centennial Mountain subsection. The topography is characterized by large scale, slump-earthflows with rolling to hilly slopes and active slope failures. Scarps, discontinuous ridges, knolls and basins are common. Seeps and springs are common.

Map Unit Setting
Subsection: Centennial Mountains
Position on the landscape: mountains
Elevations: 6600 to 7700 feet
Average annual precipitation: 30 inches
Average annual air temperature: 33 degrees F.
Geology: sedimentary

Map Unit Composition
80 percent - ABLA/THOC Nearl ecological type
20 percent - contrasting inclusions

ABLA/THOC Nearl

Setting
Slopes: 8 to 20 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: subalpine fir/western meadowrue h.t.
Present vegetation: The subalpine fir/western meadowrue h.t., or communities dominated by Douglas-fir or quaking aspen and mesic forbs are commonly supported.
Timber yield capability class: moderate

Soil Features
Name: Nearl
Classification: Fine, montmorillonitic Aquic Cryoborolls
Parent material: local alluvium derived from mixed sources over residuum of fine textured marine sediments
Typical profile:
2 to 0 inches - forest litter
0 to 4 inches - dark grayish brown loam
4 to 10 inches - dark grayish brown clay loam
10 to 21 inches - light yellowisnh brown cobbly clay loam
21 to 60 inches - yellowish brown clay
Depth class: very deep (greater than 60 inches)
Permeability: very slow
Available water capacity, surface to 20 inches: about 3 inches
Available water capacity, surface to 60 inches: about 9.5 inches
Drainage class: moderately well
Water table: 12 to 30 inches
Flooding hazard: none
Kw factor: 0.24
T factor: 4

Comments
Woodland communities are dominantly supported at elevations below 7600 feet and meadow communites are dominantly supported at elevations above 7600 feet.

Contrasting Inclusions

Inclusion 1
Slope: 15 to 40 percent
Landscape position: discontinuous ridges and knolls
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The subalpine fir/pinegrass h.t., pinegrass phase, the Douglas-fir/pinegrass community and the Douglas-fir/whortleleaf snowberry community are commonly supported.
Soils: Well drained soils that have gravelly loam to extremely cobbly sandy loam textures to depths of greater than 60 inches. (Fitzwil and Rhylow soils)

Inclusion 2
Slope: 20 to 40 percent
Landscape position: short scarpslopes and sideslopes of drainageways
Potential natural vegetation: subalpine fir/western meadowrue h.t.
Present vegetation: The subalpine fir/western meadowrue h.t. or communities dominated by Douglas-fir or quaking aspen and mesic forbs are commonly supported.
Soils: Soils like Nearl that lack a seasonal water table and have greater than 35 percent rock fragments throughout the profile.

Inclusion 3
Slope: 1 to 8 percent
Landscape position: basins, bowls, draws and bottom of drainageways
Potential natural vegetation: subalpine fir/western meadowrue h.t.
Present vegetation: Communities dominated by mesic forbs are commonly supported.
Soils: Soils like Nearl that are somewhat poorly or poorly drained.
Comments: This inclusion is commonly associated with seeps or springs. Elk wallows are common in these areas.

Management and Limitations

• Active and relic slope failures are common on this map unit. The unit lies on active slump-earthflows and on adjacent saddles above the crown of the slump-earthflows. Many management activites are limited because of slippage.

ABLA/THOC Nearl
• Fencing is severely limited on the Nearl soils because of slippage and shrink-swell.
• Establishing tree seedlings is severely limited on the ABLA/THOC Nearl ecological type due to plant competition. The soils have medium textured surface layers, seasonal wetness and a high available water capacity.
• Establishing tree seedlings is severely limited in the meadow communities supported at the higher elevation range of the ABLA/THOC Nearl ecological type due to seedling mortality. The ecological type in these positions has a very short growing season and is droughty because of landscape position and strong winds in the absence of a timber canopy.
• Developed recreation sites, paths and trails are severely limited on the Nearl soils because the soils have slow percolation and a potential for slippage.
• Pond reservoir areas are severely limited on the Nearl soils because of slippage.
• Unsurfaced roads are severely limited on theNearl soils because of wetness, shrink-swell and low strength.
• Revegetating cut and fill slopes is severely limited on the ABLA/THOC Nearl ecological type because of slippage and the soils are too clayey.
• Shallow excavations are severely limited on the Nearl soils because of slippage, seasonal wetness and the soils are too clayey.
• The potential for soil compaction is high on the Nearl soils during periods of high soil moisture. Periods of high soil moisture commonly occur during snowmelt periods and throughout the summer after rain events of several days duration.
• The use of heavy equipment for woodland or rangeland management is severely limited on the ABLA/THOC Nearl ecological type because the soils have a potential for compaction during periods of high soil moisture.
• Off-road vehicle use is limited on the ABLA/THOC Nearl ecological type because the soils have a potential for compaction during periods of high soil moisture.
• The ABLA/THOC Nearl ecological type has a perched water table in June through September. It occurs during and shortly after peak snowmelt periods and after heavy rains of several days duration.

1144 -- ABLA/SPBE2 Koffgo, dry

Unstable mountain sideslopes in the forested zone are commonly represented. The unit occupies cool north facing slopes on the upper reaches of large scale slump-earthflows. Slopes are short. They are dissected by scarps, discontinuous ridges, basins and V-shaped drainageways. Active slope failures are common.

Map Unit Setting
Subsection: Centennial Mountains
Position on the landscape: mountains
Elevations: 7000 to 8400 feet
Average annual precipitation: 27 inches
Average annual air temperature: 34 degrees F.
Geology: mixed alluvium

Map Unit Composition
80 percent - ABLA/SPBE2 Koffgo, dry ecological type
20 percent - contrasting inclusions

ABLA/SPBE2 Koffgo, dry

Setting
Slopes: 15 to 60 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: subalpine fir/white spirea h.t.
Present vegetation: The subalpine fir/white spirea h.t., Douglas-fir white spirea community or communities dominated by Douglas-fir with a depauperate understory are commonly supported.
Timber yield capability class: moderate

Soil Features
Name: Koffgo, dry
Classification: Loamy-skeletal, mixed Dystric Cryochrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
0 to 4 inches - dark grayish brown gravelly loam
4 to 18 inches - pale brown very gravelly loam
18 to 60 inches - pale brown extremely cobbly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 4 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.1
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 15 to 60 percent
Landscape position: south facing sideslopes
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The Douglas-fir/pinegrass community is commonly supported.
Soils: Soils like Koffgo, dry that have dark colored surface layers greater than 10 inches thick. (Rhylow, warm soils)

Inclusion 2
Slope: 45 to 70 percent
Landscape position: south facing sideslopes
Potential natural vegetation: Douglas-fir/Oregon grape h.t., whortleleaf snowberry phase
Present vegetation: The Douglas-fir/low Oregongrape h.t., whortleleaf snowberry phase is commonly supported.
Soils: Soils like Koffgo, dry that have a neutral reaction (pH) throughout the profile.

Inclusion 3
Slope: 35 to 60 percent
Landscape position: all positons
Potential natural vegetation: Douglas-fir/white spirea h.t., pinegrass or white spirea phases
Present vegetation: The lodgepole pine/white spirea c.t. is commonly supported.
Soils: Soils that are 15 to 20 inches deep to substratum layers having very to extremely gravelly sand or coarse sand textures. (Lasac, warm soils)

Inclusion 4
Slope: 15 to 60 percent
Landscape position: all positions
Potential natural vegetation: subalpine fir/white spirea h.t.
Present vegetation: The subalpine fir/white spirea h.t., Douglas-fir/white spirea community

or communities dominated by Douglas-fir with a depauperate understory are commonly supported.
Soils: Soils that are less than 20 inches deep to substratum layers having silty clay or clay textures.

Management and Limitations

- The use of heavy equipment for woodland management is severely limited on this map unit because of slope.
- Many management activites and uses are severely limited on this map unit because of slope and slippage. These activites and uses include pond reservoir areas, shallow excavations, developed recreation sites and roads.
- Revegetating cut and fill slopes is severely limited on this map unit type because of slope, slippage, and the soils are too rocky.

ABLA/SPBE2 Koffgo, dry

- Pond reservoir areas and sewage lagoon containment ponds are severely limited on the Koffgo, dry soils because of seepage and slope.

1145 -- ARTRV/FEID Monida - ARTRV/FEID Zeebar complex

Unstable fan remnants adjacent to the forested zone are commonly represented. The unit occupies the cool, moist end of the shrub steppe zone. The topography is characterized by strongly dissected fan remnants that have both planar summits of remnant fan surfaces and drainageways with short, rolling to hilly sideslopes. Active slope failures are common on the drainageway sideslopes. Seeps, springs and V-shaped stream channels are common.

Map Unit Setting
Subsection: Centennial Mountains
Position on the landscape: fan remnants
Elevations: 6000 to 8000 feet
Average annual precipitation: 18 inches
Average annual air temperature: 38 degrees F.
Geology: mixed alluvium

Map Unit Composition
45 percent - ARTRV/FEID Monida ecological type
30 percent - ARTRV/FEID Zeebar ecological type
25 percent - contrasting inclusions

ARTRV/FEID Monida

Setting
Slopes: 4 to 30 percent
Landscape position: sideslopes

Vegetation Features
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. and communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.
Timber yield capability class: none

Soil Features
Name: Monida
Classification: Fine-loamy, mixed Argic Cryoborolls
Parent material: local alluvium or colluvium derived from calcareous siltstone, sandstone and loess
Typical profile:
0 to 7 inches - dark grayish brown silt loam
7 to 27 inches - grayish brown silty clay loam
27 to 60 inches - pale yellow loam

Depth class: very deep (greater than 60 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 11 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.32
T factor: 5

ARTRV/FEID Zeebar

Setting
Slopes: 4 to 30 percent
Landscape position: summits and sideslopes

Vegetation Features
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. and communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.
Timber yield capability class: none

Soil Features
Name: Zeebar
Classification: Loamy-skeletal, mixed Argic Cryoborolls
Parent material: local alluvium or colluvium derived from quartzite conglomerate and loess
Typical profile:
0 to 3 inches - dark grayish brown gravelly loam
3 to 13 inches - dark grayish brown gravelly loam
13 to 27 inches - yellowish brown very gravelly sandy clay loam
27 to 49 inches - yellowish brown extremely gravelly sandy clay loam
49 to 60 inches - pale brown extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 4 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.17
T factor: 3

Contrasting Inclusions

Inclusion 1
Slope: 4 to 8 percent
Landscape position: bottom of drainageways
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Communities dominated by various willows, riparian sedges or native or non-native grasses are commonly supported.
Soils: Soils that are somewhat poorly or poorly drained.
Comments: This inclusion is commonly associated with small seeps and intermittent streams. The riparian zone is commonly less than 40 feet in width.

Inclusion 2
Slope: 4 to 20 percent
Landscape position: bowls, footslopes and north facing sideslopes
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: The quaking aspen/whortleleaf snowberry/pinegrass c.t., quaking aspen whortleleaf snowberry/Kentucky bluegrass c.t., quaking aspen/pinegrass c.t. and mountain big sagebrush/Idaho fescue h.t. are commonly supported. Widely dispersed seedling through medium sized trees of Douglas-fir occur in some areas.
Soils: Soils like Zeebar and Monida that are more moist and have dark colored surface layers greater than 16 inches thick.

Inclusion 3
Slope: 15 to 30 percent
Landscape position: ridges and south facing shoulders
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.
Soils: Soils that have very cobbly or gravelly loam textures throughout the profile and dark colored surface layers less than 7 inches thick.

Inclusion 4
Slope: 4 to 30 percent
Landscape position: spur ridges
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.
Soils: Soils like Monida that are 20 to 40 inches deep to semiconsolidated siltstone or sandstone.

Management and Limitations

- Shallow excavations and structures without basements are severely limited on this map unit because of slope and slippage.

ARTRV/FEID Zeebar
- Pond reservoir areas, sewage lagoons and containment ponds are severely limited on the Zeebar soils because of slope.
- Fencing is severely limited on the Zeebar soils because the soils are too gravelly.

1146 -- ARTRV/FEID Zeebar

Fan remnants occurring below the forested zone are commonly represented. The unit occupies the cool, moist end of the shrub steppe zone. Slopes are planar or concave. They are very lightly dissected by shallow draws. Intermittent streams are common in some areas.

Map Unit Setting
Subsection: Centennial Mountains
Position on the landscape: fan remnants
Elevations: 6000 to 9000 feet
Average annual precipitation: 17 inches
Average annual air temperature: 37 degrees F.
Geology: Divide Formation (sedimentary)

Map Unit Composition
90 percent - ARTRV/FEID Zeebar ecological type
10 percent - contrasting inclusions

ARTRV/FEID Zeebar
Setting
Slopes: 4 to 20 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. and communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.
Timber yield capability class: none

Soil Features
Name: Zeebar
Classification: Loamy-skeletal, mixed Argic Cryoborolls
Parent material: local alluvium or colluvium derived from quartzite conglomerate and loess
Typical profile:
0 to 3 inches - dark grayish brown gravelly loam
3 to 13 inches - dark grayish brown gravelly loam
13 to 27 inches - yellowish brown very gravelly sandy clay loam
27 to 49 inches - yellowish brown extremely gravelly sandy clay loam
49 to 60 inches - pale brown extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 4 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.17
T factor: 3

Contrasting Inclusions

Inclusion 1
Slope: 4 to 20 percent
Landscape position: shallow draws
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: The quaking aspen/whortleleaf snowberry/pinegrass c.t., quaking aspen/pinegrass c.t., quaking aspen/whortleleaf snowberry/Kentucky bluegrass c.t., and mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. are commonly supported. Widely dispersed seedling through medium sized trees of Douglas-fir occur in some areas.
Soils: Soils like Zeebar that are more moist and have dark colored surface layers greater than 16 inches thick.

Inclusion 2
Slope: 4 to 20 percent
Landscape position: all positions
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. and communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.
Soils: Soils like Zeebar that have accumulations of secondary carbonates in the lower subsoil layers. (Nurkey soils)

Inclusion 3
Slope: 4 to 8 percent
Landscape position: bottom of drainageways
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Diverse communities dominated by Booth's willow, Bebb willow, or other willows and beaked sedge, starry false Solomon's seal or other mesic

forbs are commonly supported.
Soils: Soils that are somewhat poorly or poorly drained.
Comments: This inclusion is commonly associated with springs, intermittent and small perennial streams. Seedling through medium sized trees of quaking aspen form a conspicuous band along the outer margin of this inclusion. This band occupies a very narrow (less than 40 feet in width) ecotone between the riparian and upland communites.

Inclusion 4
Slope: 4 to 20 percent
Landscape position: all positions
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.
Soils: Soils like Zeebar that have 5 to 15 percent cobbles or stones on the surface.
Comments: This inclusion was observed in the Smelter Gulch and Willow Creek drainages on the northeastern side of Birch Creek.

Management and Limitations

ARTRV/FEID Zeebar

- Pond reservoir areas, sewage lagoons and containment ponds are severely limited on the Zeebar soils because of slope.
- Fencing is severely limited on the Zeebar soils because the soils are too gravelly.

1147 -- ARTRV/FEID Zeebar - ARTRV/SYOR2/FEID Zeebar, cool complex

Foothills adjacent to the forested zone are commonly represented. The unit occupies the cool, moist end of the shrub steppe zone and is transitional to the forested zone on north facing sideslopes. All aspects are represented. The slopes are strongly dissected by shallow draws and low spur ridges. Intermittent streams are common in the larger drainageways.

Map Unit Setting
Subsection: Centennial Mountains
Position on the landscape: foothills
Elevations: 6500 to 9000 feet
Average annual precipitation: 18 inches
Average annual air temperature: 36 degrees F.
Geology: Divide Formation (sedimentary)

Map Unit Composition
50 percent - ARTRV/FEID Zeebar ecological type
30 percent - ARTRV/SYOR2/FEID Zeebar, cool ecological type
20 percent - contrasting inclusions

ARTRV/FEID Zeebar

Setting
Slopes: 30 to 50 percent
Landscape position: south facing sideslopes

Vegetation Features
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. and communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.
Timber yield capability class: none

Soil Features
Name: Zeebar
Classification: Loamy-skeletal, mixed Argic Cryoborolls
Parent material: local alluvium or colluvium derived from quartzite conglomerate and loess
Typical profile:
0 to 3 inches - dark grayish brown gravelly loam
3 to 13 inches - dark grayish brown gravelly loam
13 to 27 inches - yellowish brown very gravelly sandy clay loam
27 to 49 inches - yellowish brown extremely gravelly sandy clay loam
49 to 60 inches - pale brown extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 4 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.17
T factor: 3

ARTRV/SYOR2/FEID Zeebar, cool

Setting

Slopes: 30 to 50 percent
Landscape position: north facing sideslopes

Vegetation Features

Potential natural vegetation: mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. is commonly supported.
Timber yield capability class: none

Soil Features

Name: Zeebar, cool
Classification: Loamy-skeletal, mixed Argic Cryoborolls
Parent material: local alluvium or colluvium derived from quartzite conglomerate and loess
Typical profile:
0 to 3 inches - dark grayish brown gravelly loam
3 to 13 inches - dark grayish brown gravelly loam
13 to 27 inches - yellowish brown very gravelly sandy clay loam
27 to 49 inches - yellowish brown extremely gravelly sandy clay loam
49 to 60 inches - pale brown extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 4 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.17
T factor: 3

Contrasting Inclusions

Inclusion 1

Slope: 30 to 50 percent
Landscape position: north facing bowls and sideslopes
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t.
Present vegetation: The Douglas-fir/whortleleaf snowberry h.t. is commonly supported.
Soils: Soils like Zeebar, cool that are more moist and colder.

Inclusion 2

Slope: 15 to 50 percent
Landscape position: south facing spur ridges
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.
Soils: Soils that have very cobbly or gravelly loam textures throughout the profile and dark colored surface layers less than 7 inches thick.

Inclusion 3

Slope: 20 to 40 percent
Landscape position: bottom of draws
Potential natural vegetation: mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t.
Present vegetation: Communities dominated by whortleleaf snowberry and basin wildrye are commonly supported.
Soils: Soils like Zeebar, cool that have dark colored surface layers greater than 16 inches thick.

Inclusion 4

Slope: 15 to 40 percent
Landscape position: bottom of drainageways
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Diverse communities dominated by Booth's willow, Bebb willow or other willows and beaked sedge, starry false Solomon's seal or other mesic forbs are commonly supported.
Soils: Soils that are somewhat poorly or poorly drained.
Comments: This inclusion is commonly associated with springs, intermittent and small perennial streams. Seedling through medium sized trees of quaking aspen form a conspicuous band along the outer margin of this inclusion. This band occupies a very narrow (less than 40 feet) ecotone between the riparian and upland communities.

Management and Limitations

- Use of heavy equipment for rangeland management is severely limited on this map unit because of slope.
- Developed recreation sites and off-road vehicle use are severely limited on this map unit

because of slope.
- Shallow excavations are severely limited on this map unit because of slope.

ARTRV/FEID Zeebar
- Pond reservoir areas, sewage lagoons and containment ponds are severely limited on the Zeebar soils because of slope.
- Fencing is severely limited on the Zeebar soils because the soils are too gravelly.

ARTRV/SYOR2/FEID Zeebar, cool
- Pond reservoir areas, sewage lagoons and containment ponds are severely limited on the Zeebar, cool soils because of slope.
- Fencing is severely limited on the Zeebar, cool soils because the soils are too gravelly.

1148 -- PSME/CARU,CARU Ezbin

North facing sideslopes of foothills in a broad transitional area between the shrub steppe and forested zones are commonly represented. Slopes are complex. They are lightly dissected by low spur ridges and shallow draws.

Map Unit Setting
Subsection: Centennial Mountains
Position on the landscape: foothills and mountains
Elevations: 6500 to 8500 feet
Average annual precipitation: 22 inches
Average annual air temperature: 37 degrees F.
Geology: Divide Formation (sedimentary)

Map Unit Composition
80 percent - PSME/CARU,CARU Ezbin ecological type
20 percent - contrasting inclusions

PSME/CARU,CARU Ezbin

Setting
Slopes: 20 to 40 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: Douglas-fir/pinegrass h.t., pinegrass phase
Present vegetation: The Douglas-fir/pinegrass h.t., pinegrass phase is commonly supported.
Timber yield capability class: low to moderate

Soil Features
Name: Ezbin
Classification: Loamy-skeletal, mixed Argic Cryoborolls
Parent material: local alluvium or colluvium derived from loess and mixed sources
Typical profile:
1 to 0 inches - forest litter
0 to 4 inches - brown loam
4 to 15 inches - brown gravelly loam
15 to 36 inches - yellowish brown very gravelly clay loam
36 to 60 inches - light yellowish brown very gravelly loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 3 inches
Available water capacity, surface to 60 inches: about 6 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.2
T factor: 3

Contrasting Inclusions

Inclusion 1
Slope: 8 to 35 percent
Landscape position: saddles, ridges and narrow east facing sideslopes
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t.
Present vegetation: The Douglas-fir/whortleleaf snowberry h.t. is commonly supported.
Soils: Soils like Ezbin that are slightly warmer and drier.

Inclusion 2
Slope: 20 to 40 percent
Landscape position: south facing sideslopes
Potential natural vegetation: mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. is commonly supported.
Soils: Soils like Ezbin that are slightly warmer, drier and lack forest litter layers. (Zeebar, cool soils)

Inclusion 3
Slope: 15 to 50 percent
Landscape position: south facing shoulders and spur ridges

Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.
Soils: Soils that have very cobbly or gravelly loam textures throughout the profile and dark colored surface layers less than 4 inches thick.

Inclusion 4
Slope: 15 to 35 percent
Landscape position: north facing sideslopes
Potential natural vegetation: Douglas-fir/pinegrass h.t., pinegrass phase
Present vegetation: The Douglas-fir/pinegrass h.t., pinegrass phase is commonly supported.
Soils: Soils like Sedgway that have surface and subsurface layers greater than 24 inches thick.

Inclusion 5
Slope: 35 to 60 percent
Landscape position: north facing sideslopes
Potential natural vegetation: subalpine fir/white spirea h.t.
Present vegetation: The subalpine fir/white spirea h.t., Douglas-fir/white spirea community or communities dominated by Douglas-fir with a depauperate understory are commonly supported.
Soils: Soils that have very cobbly or gravelly loam textures throughout the profile and dark colored surface layers less than 7 inches thick. (Koffgo, dry)

Management and Limitations

- Developed recreation sites are severely limited on this map unit because of slope.
- Pond reservoir areas and shallow excavations are severely limited on this map unit because of slope.

PSME/CARU,CARU Ezbin

- Fencing is severely limited on the Ezbin soils because the soils are too gravelly.
- Establishing tree seedlings in large openings of the timber canopy is severely limited on the PSME/CARU,CARU Ezbin ecological type due to plant competition and seedling mortality. Grass, forbs and shrubs compete with tree seedlings for available water. Droughtiness is increased in large openings of the timber canopy because of increased winds.

1149 -- PSME/CARU,CARU Sedgway

Concave foothill and mountain sideslopes in the forested zone are commonly represented. All aspects are common. The slopes are lightly dissected by low spur ridges, shallow draws, subtle benches and short, steep escarpments. Active slope failures or soil creep are common in some areas. Seeps and intermittent streams are common to the draws in lower slope positions.

Map Unit Setting
Subsection: Centennial Mountains
Position on the landscape: foothills and mountains
Elevations: 6500 to 7100 feet
Average annual precipitation: 22 inches
Average annual air temperature: 37 degrees F.
Geology: mixed alluvium

Map Unit Composition
80 percent - PSME/CARU,CARU Sedgway ecological type
15 percent - contrasting inclusions

PSME/CARU,CARU Sedgway

Setting
Slopes: 15 to 40 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: Douglas-fir/pinegrass h.t., pinegrass phase
Present vegetation: The Douglas-fir/pinegrass h.t., pinegrass phase; Douglas-fir/whortleleaf snowberry community; quaking aspen/whortleleaf snowberry/pinegrass c.t. and quaking aspen/pinegrass c.t. are supported on lightly disturbed areas. The Douglas-fir/non-native grass community is supported on selectively cut and seeded areas. Communities dominated by snowbrush ceanothus, elk sedge or non-native grasses are supported on clearcut and scarified areas.
Timber yield capability class: low to moderate

Soil Features
Name: Sedgway
Classification: Loamy-skeletal, mixed Boralfic Cryoborolls
Parent material: local alluvium or colluvium

derived from loess and mixed sources
Typical profile:
1 to 0 inches - forest litter
0 to 10 inches - grayish brown very gravelly loam
10 to 15 inches - light brownish gray very gravelly loam
15 to 42 inches - yellowish brown very gravelly clay loam
42 to 60 inches - light yellowish brown very cobbly loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 5.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.15
T factor: 3

Contrasting Inclusions

Inclusion 1
Slope: 8 to 20 percent
Landscape position: ridges, knolls and summits
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The subalpine fir/pinegrass h.t., pinegrass phase; Douglas-fir/pinegrass community and Douglas-fir/whortleleaf snowberry community are commonly supported.
Soils: Soils like Sedgway that have surface and subsurface layers greater than 24 inches thick. (Fitzwil, warm soils)

Inclusion 2
Slope: 35 to 60 percent
Landscape position: strong south facing sideslopes
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: The Douglas-fir/whortleleaf snowberry h.t. and communities dominated by whortleleaf snowberry, white spirea, mesic forbs or native or non-native grasses are commonly supported.
Soils: Soils like Sedgway that have very or extremely gravelly sandy loam textures throughout the subsoil layers. (Povey soils)

Inclusion 3
Slope: 15 to 35 percent
Landscape position: all positions
Potential natural vegetation: Douglas-fir/pinegrass h.t., pinegrass phase
Present vegetation: The Douglas-fir/pinegrass h.t., pinegrass phase and Douglas-fir/whortleleaf snowberry communities are supported on lightly disturbed areas.
Soils: Soils like Sedgway that have less than 35 percent rock fragments in the surface and subsoil layers.

Inclusion 4
Slope: 15 to 35 percent
Landscape position: short north facing sideslopes
Potential natural vegetation: subalpine fir/blue huckleberry h.t., blue huckleberry phase or subalpine fir/white spirea h.t.
Present vegetation: The subalpine fir/blue huckleberry h.t., blue huckleberry phase; Douglas-fir/blue huckleberry community; Douglas-fir/white spirea community and communities dominated by Douglas-fir with a depauperate understory are commonly supported.
Soils: Soils that have very cobbly or gravelly loam textures throughout the profile and dark colored surface layers less than 7 inches thick. (Koffgo soils)
Comments: The communities with an understory dominated by blue huckleberry commonly occur east of Willow Creek. The communities with an understory dominated by white spirea and those that are depauperate occur west of West Dry Creek. Each of the understory types occur in the area between West Dry Creek and Willow Creek.

Inclusion 5
Slope: 4 to 20 percent
Landscape position: bottom of draws
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Communities dominated by various willows, riparian sedges, native or non-native grasses are commonly supported.
Soils: Soils that are somewhat poorly or poorly drained.
Comments: This inclusion is commonly associated with small seeps and intermittent springs. The riparian zone is less than 40 feet in width.

Management and Limitations

- Developed recreation sites are severely limited on this map unit because of slope and slippage.
- Pond reservoir areas and shallow excavations are severely limited on this map unit because of slope and slippage.

PSME/CARU,CARU Sedgway

- Fencing is severely limited on the Sedgway soils because the soils are too gravelly.
- Establishing tree seedlings in large openings of the timber canopy is severely limited on the PSME/CARU,CARU Sedgway ecological type due to plant competition and seedling mortality. Grass, forbs and shrubs in the supported communities compete with tree seedlings for available water. Droughtiness is increased in large openings of the timber canopy because of increased winds.
- The PSME/CARU,CARU Sedgway ecological type is transitional between rangeland and woodland communities. It has the potential to shift from woodland to rangeland, or vice versa in response to long term fluctuations in precipitation and temperature, fire history and recent management activities.

1150 -- ABLA/CARU,CARU Rhylow, warm - ABLA/CARU,CARU Fitzwil, warm association

South facing foothill and mountain sideslopes in the forested zone are commonly represented. The topography is characterized by dipslopes that are moderately or strongly dissected by drainageways in a parallel pattern. The summits between drainageways have planar to convex slopes. Sideslopes of drainageways have complex slopes.

Map Unit Setting

Subsection: Centennial Mountains
Position on the landscape: foothills and mountains
Elevations: 6500 to 8000 feet
Average annual precipitation: 27 inches
Average annual air temperature: 36 degrees F.
Geology: volcanic

Map Unit Composition

50 percent - ABLA/CARU,CARU Rhylow, warm ecological type
30 percent - ABLA/CARU,CARU Fitzwil, warm ecological type
20 percent - contrasting inclusions

ABLA/CARU,CARU Rhylow, warm

Setting

Slopes: 15 to 40 percent
Landscape position: south, west and east facing sideslopes

Vegetation Features

Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The subalpine fir/pinegrass h.t., pinegrass phase is present. The Douglas-fir/pinegrass, Douglas-fir/whortleleaf snowberry and subalpine big sagebrush/mountain brome communities are supported on lightly disturbed areas. The Douglas-fir/non-native grass community is supported on selectively cut and seeded areas. Communities dominated by snowbrush ceanothus, white spirea or elksedge are supported on clearcut and scarified areas.
Timber yield capability class: low to moderate

Soil Features

Name: Rhylow, warm
Classification: Loamy-skeletal, mixed Typic Cryumbrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
1 to 0 inches - forest litter
0 to 12 inches - dark brown gravelly loam
12 to 31 inches - dark yellowish brown gravelly loam
31 to 44 inches - yellowish brown very cobbly sandy loam
44 to 60 inches - grayish brown extremely stony sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 6.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.17
T factor: 4

ABLA/CARU,CARU Fitzwil, warm

Setting

Slopes: 4 to 20 percent
Landscape position: summits

Vegetation Features

Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The subalpine fir/pinegrass h.t., pinegrass phase, and Douglas-fir/pinegrass, Douglas-fir/whortleleaf snowberry and subalpine fir/subalpine big sagebrush/mountain brome communities are supported on lightly disturbed areas. The Douglas-fir/non-native grass community is supported on selectively cut and seeded areas. Communities dominated by snowbrush ceanothus or elksedge are supported on clearcut and scarified areas.
Timber yield capability class: moderate

Soil Features

Name: Fitzwil, warm
Classification: Loamy-skeletal, mixed Cryic Paleborolls
Parent material: local alluvium or colluvium derived from loess and rhyolitic tuff
Typical profile:
0 to 7 inches - dark grayish brown gravelly silt loam
7 to 14 inches - brown gravelly loam
14 to 27 inches - pale brown very gravelly loam
27 to 36 inches - very pale brown very gravelly loam
36 to 60 inches - light yellowish brown extremely cobbly loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 6 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.15
T factor: 3

Contrasting Inclusions

Inclusion 1

Slope: 20 to 50 percent
Landscape position: short north facing sideslopes of drainageways
Potential natural vegetation: subalpine fir/blue huckleberry h.t., blue huckleberry phase or subalpine fir/white spirea h.t.
Present vegetation: The subalpine fir/blue huckleberry h.t., blue huckleberry phase; Douglas-fir/blue huckleberry community; Douglas-fir/white spirea community and communities dominated by Douglas-fir with a depauperate understory are commonly supported.
Soils: Soils like Rhylow, warm that have dark colored surface layers less than 10 inches thick. (Koffgo, humid and Koffgo, dry soils)
Comments: The communities with an understory dominated by blue huckleberry commonly occur east of Willow Creek. The communities with an understory dominated by white spirea and those that are depauperate occur west of West Dry Creek. Each of the understory types occur in the area between West Dry Creek and Willow Creek.

Inclusion 2

Slope: 20 to 50 percent
Landscape position: south facing sideslopes
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t.
Present vegetation: The Douglas-fir/whortleleaf snowberry h.t. and communities dominated by whortleleaf snowberry, white spirea, mesic forbs and native or non-native grasses are commonly supported.
Soils: Soils like Rhylow, warm that have a neutral reaction (pH) throughout the profile.

Inclusion 3

Slope: 4 to 20 percent
Landscape position: summits and shoulders
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The Douglas-fir/pinegrass and Douglas-fir/whortleleaf snowberry communities are commonly supported.
Soils: Soils like Fitzwil, warm that have fragmental material or fractured bedrock beginning at depths of 20 to 40 inches.

Inclusion 4

Slope: 4 to 35 percent
Landscape position: summits at elevations greater than 7800 feet
Potential natural vegetation: subalpine fir/mountain meadow mosaic
Present vegetation: The present vegetation varies from uniform communities to fine mosaics of the following: subalpine fir/heartleaf arnica h.t., heartleaf arnica phase;

subalpine fir/gooseberry currant h.t., whitebark pine phase; Douglas-fir/elk sedge community; lodgepole pine/elk sedge c.t.; big sagebrush/California brome h.t.; big sagebrush/elk sedge h.t.; communities dominated by native or non-native grasses and mesic forbs; whitebark pine/Ross' sedge h.t. and mountain big sagebrush/Idaho fescue h.t.

Soils: Soils like Rhylow, warm and Fitzwil, warm that are cooler. (Rhylow, high elevation and Fitzwil, high elevation soils)

Inclusion 5

Landscape position: sideslopes

Soils: Rubble land dominated by cobbles, stones or boulders.

Management and Limitations

ABLA/CARU,CARU Rhylow, warm

- Establishing tree seedlings is severely limited on the ABLA/CARU,CARU Rhylow, warm ecological type due to plant competition. Pinegrass or mountain snowberry increase in openings of the timber canopy. Elksedge or ceanothus increase after scarification. These species compete with the tree seedlings for available water.

- Establishing tree seedlings in large openings of the timber canopy is severely limited on the ABLA/CARU,CARU Rhylow, warm ecological type due to seedling mortality. Droughtiness is increased in large openings of the canopy because of increased winds.

ABLA/CARU,CARU Fitzwil, warm

- Establishing tree seedlings is severely limited on the ABLA/CARU,CARU Fitzwil, warm ecological type due to plant competition. Pinegrass or mountain snowberry increase in openings of the timber canopy. Elksedge or ceanothus increase after scarification. These species compete with the tree seedlings for available water.
- Establishing tree seedlings in large openings of the timber canopy is severely limited on the ABLA/CARU,CARU Fitzwil, warm ecological type due to seedling mortality. Droughtiness is increased in large openings of the canopy because of increased winds.
- Shallow excavations are severely limited on the Fitzwil, warm soils because the soils are too rocky.
- Pond reservoir areas are severely limited on the Fitzwil, warm soils because of seepage.
- Lodgepole pine windthrow hazard is severe on the ABLA/CARU,CARU Fitzwil, warm ecological type because the soils are too rocky.
- Revegetating cut and fill slopes is severely limited on the ABLA/CARU,CARU Fitzwil, warm ecological type because the soils are too rocky and the subsoil and substratum layers are droughty.

1154 -- PSME/JUCO6 Pikaden - PSME/SYOR2 Pikaden, warm - Rubble land association

Very steep, high relief, convex mountain sideslopes in dry forested zones are commonly represented. The unit occupies all positions in the forested zone. Cool, north facing sideslopes and warm, south facing sideslopes of canyons, deeply incised into the mountain range are common. The slopes are lightly dissected by shallow draws and low spur ridges.

Map Unit Setting

Subsection: Lemhi-Medicine Lodge
Position on the landscape: mountains
Elevations: 7500 to 9800 feet
Average annual precipitation: 22 inches
Average annual air temperature: 36 degrees F.
Geology: quartzite

Map Unit Composition

40 percent - PSME/JUCO6 Pikaden ecological type
25 percent - PSME/SYOR2 Pikaden, warm ecological type
15 percent - rubble land ecological type
20 percent - contrasting inclusions

PSME/JUCO6 Pikaden

Setting

Slopes: 40 to 65 percent
Landscape position: north facing sideslopes

Vegetation Features

Potential natural vegetation: Douglas-fir/common juniper h.t.
Present vegetation: The Douglas-fir/common juniper h.t. is commonly supported.
Timber yield capability class: low

Soil Features
Name: Pikaden
Classification: Sandy-skeletal, mixed Typic Cryochrepts
Parent material: colluvium derived from quartzite and loess
Typical profile:
1 to 0 inches - forest litter
0 to 5 inches - brown extremely gravelly silt loam
5 to 12 inches - light brownish gray extremely gravelly loam
12 to 27 inches - light brownish gray extremely gravelly loamy sand
27 to 60 inches - fragmental
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 0.05 inches
Available water capacity, surface to 60 inches: about 0.05 inches
Drainage class: somewhat excessively
Water table: none
Flooding hazard: none
Kw factor: 0.05
T factor: 2

Comments
The understory is open and sparse. Common juniper occurs in patches ranging from 3 to 20 feet in diameter and covers about 5 percent of the slope.

PSME/SYOR2 Pikaden, warm

Setting
Slopes: 40 to 65 percent
Landscape position: south facing sideslopes

Vegetation Features
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t.
Present vegetation: The Douglas-fir/whortleleaf snowberry h.t. is commonly supported.
Timber yield capability class: low

Soil Features
Name: Pikaden, warm
Classification: Sandy-skeletal, mixed Typic Cryochrepts
Parent material: colluvium derived from quartzite and loess
Typical profile:
0 to 9 inches - dark grayish brown extremely gravelly sandy loam
9 to 17 inches - light brownish gray extremely gravelly sandy loam
17 to 30 inches - light gray extremely cobbly loamy sand
30 to 60 inches - fragmental
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 0.05 inches
Available water capacity, surface to 60 inches: about 0.05 inches
Drainage class: somewhat excessively
Water table: none
Flooding hazard: none
Kw factor: 0.02
T factor: 2

Rubble land

Setting
Landscape position: all positions

Comments
Rubble land is dominated by cobbles, stones or boulders derived from quartzite in this unit. Those areas of rubble land occurring on south facing sideslopes at mid to lower elevation ranges of the unit are commonly in a fine, irregular mosaic with the PSME/JUCO6 Pikaden and PSME/SYOR2 Pikaden, warm ecological types and appear to support dispersed communities of trees, shrubs, and grasses. Communities dominated by Rocky Mountain juniper, curlleaf mountain mahogany and quaking aspen are also supported.

Contrasting Inclusions

Inclusion 1
Slope: 30 to 50 percent
Landscape position: sideslopes at the upper elevation range of the unit
Potential natural vegetation: limber pine/Idaho fescue h.t.
Present vegetation: The limber pine/Idaho fescue h.t. is commonly supported.
Soils: Soils like Pikaden that are more droughty.

Inclusion 2
Slope: 40 to 65 percent
Landscape position: south facing sideslopes
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the Douglas fir/whortleleaf snowberry and mountain big

sagebrush/Idaho fescue h.t.s are commonly supported.
Soils: Soils like Pikaden, warm that have very to extremely gravely sandy loam textures throughout the subsoil layers. (Povey soils)

Inclusion 3
Landscape position: south facing sideslopes
Present vegetation: Lichens are commonly supported.
Soils: Rock outcrops occurring as irregular cliffs.

Comments: Rock outcrops are commonly associated with areas of rubble land.

Management and Limitations

- Shallow excavations for access roads, landings and mineral prospects are severely limited on this mapping unit because the cutbanks collapse.
- Revegetating cut and fill slopes is severely limited on this mapping unit because of slope and rocky, droughty soils.
- Fencing is severely limited on this mapping unit because the soils are too gravelly and areas of rubble land are too rocky.
- The use of heavy equipment for woodland or rangeland management is severely limited on this mapping unit because of slope and areas of rubble land.

1172 -- PSME/ACGL Kitchell - ABLA/ACGL Kitchell, humid association

Incompletely defined at time of this printing.

1204 -- PSME/ARTRV Povey, steep

Convex, south facing canyon, foothill and mountain sideslopes adjacent to the forested zone are commonly represented. The unit occupies the moist end of the shrub steppe zone and is transitional to the forested zone.

Map Unit Setting
Subsection: Centennial Mountains
Position on the landscape: canyons, foothills and mountains
Elevations: 6400 to 9600 feet
Average annual precipitation: 19 inches
Average annual air temperature: 39 degrees F.
Geology: volcanic, quartzite

Map Unit Composition
80 percent - PSME/ARTRV Povey ecological type
20 percent - contrasting inclusions

PSME/ARTRV Povey

Setting
Slopes: 30 to 60 percent
Landscape position: all positons

Vegetation Features
Potential natural vegetation:
Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. and Douglas-fir/whortleleaf snowberry h.t. are commonly supported. Communities dominated by mountain big sagebrush, whortleleaf snowberry or snowbrush ceanothus and bluebunch wheatgrass or California brome are also commonly supported. Seedling through pole sized Douglas-fir are widely dispersed in some areas of the shrub dominated communities.
Timber yield capability class: low

Soil Features
Name: Povey
Classification: Loamy-skeletal, mixed Pachic Cryoborolls
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
0 to 27 inches - dark grayish brown gravelly loam

27 to 39 inches - dark grayish brown very gravelly sandy loam
39 to 60 inches - pale brown extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches:

about 6 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.2
T factor: 5

Contrasting Inclusions

Inclusion 1
Slope: 35 to 60 percent
Landscape position: spur ridges
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.
Soils: Soils like Povey that have dark colored surface layers less than 16 inches thick.

Inclusion 2
Landscape position: all positions
Soils: Rock outcrops occurring as irregular cliffs.

Inclusion 3
Slope: 35 to 60 percent
Landscape position: all positions
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. and the Douglas-fir/whortleleaf snowberry h.t. are commonly supported. Communities dominated by mountain big sagebrush, whortleleaf snowberry, or snowbrush ceanothus and bluebunch wheatgrass, California brome or mountain brome are also supported. Widely dispersed seedling through pole sized trees of Douglas-fir occur in some areas of the shrub dominated communities.
Soils: Soils like Povey that have very gravelly sandy clay loam or clay loam textures in the subsoil layers.

Inclusion 4
Slope: 15 to 35 percent
Landscape position: subtle benches
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t and the Douglas-fir/whortleleaf snowberry h.t. are commonly supported. Communities dominated by mountain big sagebrush, whortleleaf snowberry, quaking aspen saplings, black chokecherry or snowbrush ceanothus and bluebunch wheatgrass or California brome are also supported. Seedling through pole sized Douglas-fir are widely dispersed in some areas of the shrub dominated communities.
Soils: Soils like Povey that have silt loam or gravelly silt loam textures in the surface and subsoil layers.

Management and Limitations

- The use of heavy equipment for rangeland management is severely limited on this map unit because of slope.
- Revegetating cut and fill slopes is severely limited on this map unit because of slope.
- Off-road vehicle use is severely limited on this map unit because of slope.
- Establishing Douglas fir or lodgepole pine seedlings is severely limited on this map unit because of plant competition and seedling mortality. The average annual precipitation is limiting for Douglas-fir and lodgepole pine. Grass, forbs and shrubs of the supported communities compete for the limited available water.

PSME/ARTRV Povey

- The PSME/ARTRV Povey ecological type occupies positions just below the present forested zone. These positions appear to be in a broad transitional area between the shrub steppe and forested zones. The supported vegetation may shift from shrub steppe to woodland communities, or vice versa, in response to long term fluctuations in precipitation and temperature, fire history, or recent use and management activites. Due to these fluctuations, both the mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. and the Douglas-fir/whortleleaf snowberry h.t. could be considered as potental vegetation for these transitional positions. Recurring disturbance or warm, dry periods will produce the shrub steppe communities. Prolonged periods with little disturbance, absence of fire or cool, moist periods will produce the woodland communities.

1222 -- ABLA/ACGL Lag, humid - PSME/SYAL Lag association

Deeply incised canyons in the forested zone are commonly represented. Cool, moist, north facing sideslopes and warm, dry, south facing sideslopes are common. Slopes are convex. The relief is commonly 200 to 500 feet. The north facing sideslopes are lightly to moderately dissected by low spur ridges and shallow draws. Rock outcrops as surface level exposures are common on the spur ridges. The south facing sideslopes are moderately or strongly dissected by parallel bands of cliffs, shelves and narrow benches.

Map Unit Setting
Subsection: Island Park
Position on the landscape: canyons
Elevations: 5300 to 6600 feet
Average annual precipitation: 24 inches
Average annual air temperature: 37 degrees F.
Geology: volcanic

Map Unit Composition
40 percent - ABLA/ACGL Lag, humid ecological type
40 percent - PSME/SYAL Lag ecological type
20 percent - contrasting inclusions

ABLA/ACGL Lag, humid

Setting
Slopes: 50 to 70 percent
Landscape position: north facing sideslopes

Vegetation Features
Potential natural vegetation: subalpine fir/Rocky Mountain maple h.t.
Present vegetation: The subalpine fir/Rocky Mountain maple h.t., Douglas-fir/Rocky Mountain maple community or quaking aspen/Scouler's willow c.t. are commonly supported.
Timber yield capability class (1): moderate

Soil Features
Name: Lag, humid
Classification: Loamy-skeletal, mixed Typic Cryoborolls
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
2 to 0 inches - forest litter
0 to 10 inches - dark grayish brown very gravelly loam
10 to 60 inches - light brownish gray extremely stony sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 1 in.
Available water capacity, surface to 60 inches: about 1.5 in.
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.15
T factor: 3

PSME/SYAL Lag

Setting
Slopes: 50 to 70 percent
Landscape position: south facing sideslopes

Vegetation Features
Potential natural vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The Douglas-fir/common snowberry h.t. and the Douglas-fir/white spirea community are commonly supported.
Timber yield capability class: moderate

Soil Features
Name: Lag
Classification: Loamy-skeletal, mixed Typic Cryoborolls
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
1 to 0 inches - forest litter
0 to 7 inches - very dark gray very gravelly loam
7 to 15 inches - very dark grayish brown extremely cobbly sandy loam
15 to 28 inches - pale brown extremely cobbly loam
28 to 60 inches - pale brown extremely cobbly loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 in.
Available water capacity, surface to 60 inches: about 4.5 in.
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.15

T factor: 3

Contrasting Inclusions

Inclusion 1

Slope: 35 to 75 percent
Landscape position: south facing sideslopes
Potential Natural Vegetation: Douglas-fir/white spirea h.t., pinegrass phase
Present vegetation: The Douglas-fir/white spirea h.t., pinegrass phase or more droughty communities are commonly supported.
Soils: Soils like Lag that are less than 40 inches deep over hard bedrock.
Comments: The combined ground cover of tree, shrub and grass-forb layers is commonly less in these communities than for similar community types supported on the very deep Lag soils.

Inclusion 2

Landscape position: all positions
Present vegetation: Dispersed and varied communities growing from narrow fractures of the rock are commonly supported.
Soils: Rock outcrops occurring as surface level exposures to parallel bands of cliffs 100 feet or more in height.
Comments: The rock outcrops commonly occur as surface level exposures on north facing spur ridges. On south facing sideslopes the rock outcrops occur in long, linear bands that run across the slope. Both surface level exposures and cliffs are represented on the south facing sideslopes.

Inclusion 3

Slope: 35 to 50 percent
Landscape position: south and west facing benches and shelves
Potential Natural Vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The Douglas-fir/common snowberry h.t., quaking aspen-Douglas-fir/Saskatoon serviceberry c.t., and quaking aspen/Saskatooon serviceberry-whortleleaf snowberry/pinegrass c.t. are commonly supported.
Soils: Soils like Lag that have dark colored surface layers greater than 16 inches thick.

Inclusion 4

Slope: 15 to 50 percent
Landscape position: north and east facing shoulders
Potential Natural Vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/blue huckleberry c.t. is commonly supported.
Soils: Soils that have silt loam or gravelly silt loam textures to depths of 40 inches or more.

Inclusion 5

Slope: 40 to 60 percent
Landscape position: north and east facing footslopes
Potential Natural Vegetation: subalpine fir/red baneberry h.t.
Present vegetation: The subalpine fir/baneberry h.t. is commonly supported.
Soils: Soils like Lag, humid that are more moist and cool.

Management and Limitations

- The use of heavy equipment for woodland management is severely limited on this map unit because of slope.
- Revegetating cut and fill slopes is severely limited on this map unit because the soils are too rocky and because of slope.
- Roads, paths and trails are severely limited on this map unit because of slope and inclusion areas of rock outcrop.

ABLA/ACGL Lag, humid

- Shallow excavations are severely limited on the Lag, humid soils because of slope and the soils are too rocky.
- Fencing is severely limited on the Lag, humid soils because the soils are too gravelly or rocky.
- Pond reservoir areas and sewage lagoon containment ponds are severely limited on the Lag, humid soils because of seepage and slope.
- Fencing is severely limited on the Lag, humid soils because the soils are too gravelly or rocky.

PSME/SYAL Lag

- Establishing tree seedlings is severely limited on the PSME/SYAL Lag ecological type due to plant competition. The surface layers of the soil are medium textured and have a high available water capacity.
- Shallow excavations are severely limited on the Lag soils because of slope and the soils are too rocky.

1224 -- ABLA/VAGL,VASC Koffgo, cool - ABLA/VAGL,VASC Huckridge, humid complex

Shallow incised canyons and strongly dissected tablelands in the forested zone are commonly represented. Slopes are complex. The relief is commonly 100 to 200 feet.

Map Unit Setting
Subsection: Island Park
Position on the landscape: canyons and dissected tablelands
Elevations: 5300 to 6400 feet
Average annual precipitation: 24 inches
Average annual air temperature: 36 degrees F.
Geology: volcanic

Map Unit Composition
50 percent - ABLA/VAGL,VASC Koffgo, cool ecological type
30 percent - ABLA/VAGL,VASC Huckridge, humid ecological type
20 percent - contrasting inclusions

ABLA/VAGL,VASC Koffgo, cool

Setting
Slopes: 25 to 45 percent
Landscape position: sideslopes

Vegetation Features
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/grouse whortleberry and lodgepole pine/blue huckleberry c.t.s are supported on lightly disturbed areas. The lodgepole pine/elk sedge and lodgepole pine/pinegrass c.t.s are supported in plantations and regenerating clearcuts. Communities dominated by elk sedge or pinegrass are supported in recent clearcut and scarified areas.
Timber yield capability class: moderate

Soil Features
Name: Koffgo, cool
Classification: Loamy-skeletal, mixed Dystric Cryochrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
1 to 0 inches - forest litter
0 to 5 inches - brown gravelly loam
5 to 23 inches - pale brown very gravelly loam
23 to 50 inches - pale brown extremely stony sandy loam
50 to 60 inches - fragmental
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 2.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.1
T factor: 2

ABLA/VAGL,VASC Huckridge, humid

Setting
Slopes: 20 to 35 percent
Landscape position: summits, shoulders and footslopes

Vegetation Features
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/grouse whortleberry and lodgepole pine/blue huckleberry c.t.s are supported on lightly disturbed areas. The lodgepole pine/elk sedge and lodgepole pine/pinegrass c.t.s are supported in plantations and regenerating clearcuts. Communities dominated by elk sedge or pinegrass are supported in recent clearcut and scarified areas.
Timber yield capability class: moderate

Soil Features
Name: Huckridge, humid
Classification: Fine-silty, mixed Typic Paleboralfs
Parent material: local alluvium derived dominantly from loess
Typical profile:
1 to 0 inches - forest litter
0 to 3 inches - grayish brown silt loam
3 to 22 inches - pale brown silt loam
22 to 31 inches - very pale brown and brown silt loam
31 to 65 inches - brown silt loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 12 inches
Drainage class: well

Water table: none
Flooding hazard: none
Kw factor: 0.43
T factor: 5

Contrasting Inclusions

Inclusion 1
Slope: 25 to 45 percent
Landscape position: all positions
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/blue huckleberry and lodgepole pine/grouse whortleberry c.t.s are commonly supported.
Soils: Soils like Koffgo, cool that have a silt loam texture with less than 15 percent rock fragments in the surface and upper subsoil layers.

Inclusion 2
Slope: 25 to 45 percent
Landscape position: convex, mid and upper sideslopes
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/blue huckleberry and lodgepole pine/grouse whortleberry c.t.s are commonly supported.
Soils: Soils like Koffgo, cool and Huckridge, humid that are less than 40 inches deep over hard bedrock.

Inclusion 3
Slope: 15 to 45 percent
Landscape position: convex south facing sideslopes
Potential natural vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The Douglas-fir/white spirea community, quaking aspen-lodgepole pine/whortleleaf snowberry c.t. and quaking aspen/whortleleaf snowberry/pinegrass c.t. are commonly supported.
Soils: Soils like Koffgo, cool that have dark colored surface layers greater than 10 inches thick and a neutral reaction (pH) throughout the profile. (Lag soils)

Inclusion 4
Slope: 4 to 20 percent
Landscape position: summits
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/blue huckleberry and lodgepole pine/grouse whortleberry c.t.s are commonly supported.
Soils: Huckridge, humid soils are represented.

Inclusion 5
Landscape position: all positions
Soils: Rubble land dominated by cobbles or boulders.

Management and Limitations

- Revegetating cut and fill slopes is severely limited on the ABLA/VAGL/VASC Koffgo, cool ecological type because the soils are too rocky.
- Shallow excavations are severely limited on the Koffgo, cool soils because of slope and the soils are too rocky.

ABLA/VAGL,VASC Koffgo, cool
- Revegetating with grass or shrubs is severely limited on the ABLA/VAGL,VASC Koffgo, cool ecological type because of slope.
- The use of heavy equipment for woodland management is severely limited on the Koffgo, cool soils because of slope.
- Developing recreation sites is severely limited on the Koffgo, cool soils because of slope.
- Septic tank absorption fields are severely limited on Koffgo, cool soils because of slope.
- Pond reservoir areas and sewage lagoon containment ponds are severely limited on the Koffgo soils because of seepage and slope.
- Fencing is severely limited on the Koffgo, cool soils because the soils are too gravelly or rocky.

ABLA/VAGL,VASC Huckridge, humid
- The use of heavy equipment for woodland management is severely limited on the ABLA/VAGL,VASC Huckridge, humid ecological type because the soils are erodible and have a potential for compaction.
- Off-road vehicle use is severely limited on the Huckridge, humid soils because the soils are erodible and have a potential for compaction.
- Paths and trails are severely limited on the Huckridge, humid soils because the soils have a thin surface, the subsurface layers are erodible and the substratum layers have slow percolation.
- Unsurfaced roads and landings are severely limited on the Huckridge, humid soils because the soils have low strength and are erodible. During moist soil conditions the soils rut from vehicle use. These ruts may concentrate runoff from snowmelt and rain events, increasing the potential for gully erosion. Moist soil conditions commonly occur in late spring to early summer and in the autumn before the ground freezes.

- Two to eight inch thick dust layers have been observed in heavy traffic areas on the Huckridge, humid soils during late summer and early autumn. These dust layers may become saturated with water during snowmelt periods and erode.
- Exposed subsurface layers of the Huckridge, humid soils have a very high potential for soil erosion from water. Exposed conditions may occur on freshly cut or unsurfaced roads, landings, barrow pits, cutbanks, paths and trails, or other disturbed areas.
- The potential for soil compaction is high on the Huckridge, humid soils during periods of high soil moisture. Periods of high soil moisture commonly occur in late spring to early summer and in the autumn before the ground freezes. A one to two inch thick compaction pan beginning at surface level to depths of 12 inches has been observed in some areas.

1225 -- PIAL Lasac - ABLA Castan complex

Escarpments of volcanic plateaus in the forested zone are commonly represented. Relief of the escarpments range from 200 to 600 feet. The upper sideslopes of the escarpments are convex and the lower sideslopes are concave. These sideslopes are strongly dissected in a parallel pattern by shallow draws and low spur ridges. Long, narrow sideslopes with cool, north facing aspects and warm, south facing aspects are represented.

Map Unit Setting
Subsection: Madison-Pitchstone Plateaus
Position on the landscape: escarpments of plateaus
Elevations: 6500 to 8000 feet
Average annual precipitation: 40 inches
Average annual air temperature: 34 degrees F.
Geology: volcanic

Map Unit Composition
60 percent - PIAL Lasac ecological type
20 percent - ABLA Castan ecological type
20 percent - contrasting inclusions

PIAL Lasac
Setting
Slopes: 35 to 60 percent
Landscape position: spur ridges and south and west facing sideslopes

Vegetation Features
Potential natural vegetation: whitebark pine/elk sedge h.t. or whitebark pine/grouse whortleberry h.t.
Present vegetation: The lodgepole pine/elk sedge c.t. and lodgepole pine/grouse whortleberry c.t. are commonly supported. The whitebark pine/elk sedge h.t. is represented.
Timber yield capability class: low

Soil Features
Name: Lasac
Classification: Ashy-skeletal Vitrandic Cryochrepts
Parent material: local alluvium, colluvium or residuum derived from mixed volcanic ejecta and loess
Typical profile:
1 to 0 inches - forest litter
0 to 6 inches - brown gravelly silt loam
6 to 10 inches - pale brown gravelly silt loam
10 to 17 inches - pale brown extremely gravelly coarse sandy loam
17 to 60 inches - light brownish gray very gravelly coarse sand
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 3 inches
Drainage class: somewhat excessively
Water table: none
Flooding hazard: none
Kw factor: 0.2
T factor: 3

Comments
The supported communities vary with aspect and slope positions. South facing sideslopes and spur ridges commonly support an understory dominated by elk sedge. West facing sideslopes and north facing spur ridges commonly support an understory dominated by grouse whortleberry.

ABLA Castan
Setting
Slopes: 30 to 50 percent
Landscape position: north facing sideslopes and footslopes with all aspects

Vegetation Features
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase or subalpine fir/grouse whortleberry h.t., grouse whortleberry or pinegrass phases
Present vegetation: The lodgepole pine/grouse whortleberry c.t., lodgepole pine/blue huckleberry c.t., lodgepole pine/pinegrass c.t. and lodgepole pine/elk sedge c.t. are commonly supported.
Timber yield capability class: low

Soil Features
Name: Castan
Classification: Ashy-skeletal Humic Vitricryands
Parent material: colluvium or residuum derived from tephra and loess
Typical profile:
1 to 0 inches - forest litter
0 to 11 inches - brown cobbly silt loam
11 to 16 inches - brown cobbly loam
16 to 49 inches - pale brown and very pale brown extremely gravelly sandy loam
49 to 60 inches - pale brown extremely gravelly loamy sand
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 3.5 inches
Available water capacity, surface to 60 inches: about 6 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.15
T factor: 3

Contrasting Inclusions

Inclusion 1
Slope: 20 to 50 percent
Landscape position: south facing swales
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The subalpine fir/pinegrass h.t., pinegrass phase; lodgepole pine/pinegrass c.t.; quaking aspen/pinegrass c.t.; and quaking aspen-subalpine fir/elk sedge c.t. are commonly supported.
Soils: Soils like Castan that are more dry and warm.

Inclusion 2
Landscape position: spur ridges
Soils: Rock outcrops occurring as surface level exposures to irregular cliffs 20 feet in height.

Management and Limitations

- Revegetating cut and fill slopes is severely limited on this map unit because of slope, the soils are too rocky, and the subsoil and substratum layers are erodable.
- Revegetating with grass or forbs after fire is limited on this map unit because of hydrophobic soil conditions and slope.
- The use of heavy equipment for woodland management is severely limited on the Castan soils because of slope.
- Developed recreation sites are severely limited on this map unit because of slope.

PIAL Lasac
- Fencing is severely limited on the Lasac soils because the soils are too gravelly.
- Establishing tree seedlings is severely limited on the PIAL Lasac ecological type due to seedling mortality. The soils are droughty.
- Establishing tree seedlings in clearcut or burned areas is limited on the PIAL Lasac ecological type because of short growing seasons and increased droughtiness of large openings in the timber canopy.
- The use of heavy equipment for woodland management is severely limited on the Lasac soils because the soils have a thin surface and the subsoil and substratum layers are erodable.
- Severe rill or gully erosion may occur on the Lasac soils during a single rain event. Exposed subsoil and substratum layers have a very high potential for water erosion. Exposed soil conditions may occur on skidtrails, freshly cut or unsurfaced roads, landings, barrow pits, roadfills, cutbanks or other disturbed sites.
- Severe hydrophobic conditions in the soil surface layers of the PIAL Lasac ecological type have been observed after fires. These hydrophobic conditions increase surface runoff and increase the potential for rill and gully erosion on all slope positions.
- Paths and trails are severely limited on the Lasac soils because the soils have a thin surface and the subsoil and substratum layers are erodable.
- Pond reservoir areas are severely limited on the Lasac soils because of seepage and slope.
- Shallow excavations are severely limited on the Lasac soils because the cutbanks collapse.

ABLA Castan
- Fencing is severely limited on the Castan soils

because the soils are too gravelly.
- Severe hydrophobic conditions in the soil surface layers of the ABLA Castan ecological type have been observed after fires. These hydrophobic conditions increase surface runoff and increase the potental for rill or gully erosion on all slope postions.
- Severe rill or gully erosion may occur on the Castan soils during a single rain event. Exposed subsoil and substratum layers of the soil have a very high potential for water erosion. Exposed conditions may occur on freshly cut or unsurfaced roads, landings, barrow pits, roadfills, cutbanks or other disturbed sites.
- Pond reservoir areas are severely limited on the Castan soils because of seepage and slope.
- Establishing tree seedlings is limited on the ABLA Castan ecological type because of a short growing season.

1228 -- PSME/CARU,CARU Nopla - PSME/CARU,CARU Hooter complex

Remnants of shield volcanos in the forested zone are commonly represented. The topography is characterized by undulating to rolling slopes with a subtle increase in elevation.

Map Unit Setting
Subsection: Island Park
Position on the landscape: shield volcanos
Elevations: 6000 to 7000 feet
Average annual precipitation: 24 inches
Average annual air temperature: 38 degrees F.
Geology: volcanic

Map Unit Composition
60 percent - PSME/CARU,CARU Nopla ecological type
20 percent - PSME/CARU,CARU Hooter ecological type
20 percent - contrasting inclusions

PSME/CARU,CARU Nopla

Setting
Slopes: 2 to 15 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation:
Douglas-fir/pinegrass h.t., pinegrass phase
Present vegetation: The Douglas-fir/pinegrass h.t., pinegrass phase; lodgepole pine/pinegrass c.t., quaking aspen/whortleleaf snowberry/pinegrass c.t. or Douglas-fir/whortleleaf snowberry community are supported in lightly disturbed areas. Communities dominated by elk sedge, pinegrass or mesic forbs are supported in recent clearcut areas.
Timber yield capability class: low to moderate

Soil Features
Name: Nopla
Classification: Fine-loamy, mixed Cryic Paleborolls
Parent material: local alluvium derived from loess and mixed volcanic rocks
Typical profile:
1 to 0 inches - forest litter
0 to 14 inches - brown silt loam
14 to 24 inches - pale brown silt loam
24 to 39 inches - yellowish brown and pale brown gravelly silt loam
39 to 54 inches - brown very cobbly loam
54 to 75 inches - brown silt loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 3.5 inches
Available water capacity, surface to 60 inches: about 9 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.32
T factor: 5

PSME/CARU,CARU Hooter

Setting
Slopes: 2 to 15 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation:
Douglas-fir/pinegrass h.t., pinegrass phase
Present vegetation: The Douglas-fir/pinegrass h.t., pinegrass phase; lodgepole pine/pinegrass c.t. and Douglas-fir/whortleleaf snowberry community are supported in lightly disturbed areas. Communities dominated by elk sedge, pinegrass or mesic forbs are supported in recent clearcut areas.
Timber yield capability class: low to moderate

Soil Features
Name: Hooter
Classification: Fine-loamy, mixed Cryic Paleborolls
Parent material: local alluvium derived from loess, basalt and andesite
Typical profile:
3 to 0 inches - forest litter
0 to 10 inches - brown silt loam
10 to 24 inches - pale brown and yellowish brown silt loam
24 to 30 inches - yellowish brown and very pale brown stony silt loam
30 to 35 inches - yellowish brown stony clay loam
35 inches - basalt bedrock
Depth class: moderately deep (20 to 40 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 3.5 inches
Available water capacity, surface to bedrock: about 5.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.28
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 8 to 20 percent
Landscape position: north facing sideslopes of low ridges
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/blue huckleberry or lodgepole pine/grouse whortleberry c.t.s are commonly supported.
Soils: Soils like Nopla that are more moist and cool.

Inclusion 2
Slope: 2 to 12 percent
Landscape position: north facing toeslopes of low ridges
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass or lodgepole pine/grouse whortleberry c.t.s are commonly supported.
Soils: Soils that have light colored subsurface layers with silt loam textures to depths of 40 inches or more.

Inclusion 3
Slope: 8 to 20 percent
Landscape position: south facing shoulder and sideslopes low ridges
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t.
Present vegetation: The Douglas-fir/whortleleaf snowberry h.t. or communities dominated by whortleleaf snowberry and California brome are commonly supported.
Soils: Soils that have 5 to 20 percent stones and boulders on or in the surface layers and greater than 35 percent cobbles, stones or boulders in the subsoil layers.

Inclusion 4
Slope: 0 to 2 percent
Landscape position: sloughs and drainageways
Potential natural vegetation: subalpine fir/western meadowrue h.t.
Present vegetation: The quaking aspen/tall forb c.t. is commonly supported.

Soils: Soils like Nopla that are somewhat poorly drained.
Comments: This inclusion occurs in the Icehouse, Bunkhouse, Willow and Meyers creek areas. Many of the sloughs and drainageways in these areas have an induced water table resulting from beaver activity in adjacent stream channels.

Management and Limitations

PSME/CARU,CARU Nopla
- Establishing tree seedlings is severely limited on the PSME/CARU,CARU Nopla ecological type due to plant competition with grass and shrubs and increased droughtiness in large openings of the timber canopy. Pinegrass and mountain snowberry increase in openings of the timber canopy. Elksedge or ceanothus increase after scarification of the understory.
- Unsurfaced roads are severely limited on the Nopla soils because of low strength in the subsoil and substratum layers. Unsurfaced roads built form the Nopla soils have been observed to rut severely from traffic during and shortly after heavy rain events.

PSME/CARU,CARU Hooter
- Establishing tree seedlings is severely limited on the PSME/CARU,CARU Hooter ecological type due to plant competition. The surface layers of the soil are medium textured and have a high available water capacity.

• Use as soil reconstruction material for drastically disturbed areas is severely limited on the Hooter soils because the soils are too stony.

1230 -- PSME/SPBE2 Lasac, warm - ABLA/CARU,CARU Koffgo, warm complex

South facing mountain sideslopes in the forested zone are commonly represented. The sideslopes are lightly to moderately dissected by shallow draws and low spur ridges in a dendritic pattern.

Map Unit Setting
Subsection: Island Park
Position on the landscape: mountains
Elevations: 6800 to 8000 feet
Average annual precipitation: 30 inches
Average annual air temperature: 34 degrees F.
Geology: volcanic

Map Unit Composition
60 percent - PSME/SPBE2 Lasac, warm ecological type
20 percent - ABLA/CARU,CARU Koffgo, warm ecological type
20 percent - contrasting inclusions

PSME/SPBE2 Lasac, warm

Setting
Slopes: 35 to 60 percent
Landscape position: sideslopes and ridges

Vegetation Features
Potential natural vegetation: Douglas-fir/white spirea h.t., pinegrass or white spirea phases
Present vegetation: The Douglas-fir/white spirea h.t., pinegrass phase; lodgepole pine/white spirea c.t. and Douglas-fir/pinegrass community are commonly supported. Timber yield capability class: low

Soil Features
Name: Lasac, warm
Classification: Ashy-skeletal Vitrandic Cryochrepts
Parent material: local alluvium, colluvium or residuum derived from mixed volcanic ejecta and loess
Typical profile:
0 to 6 inches - brown gravelly silt loam
6 to 12 inches - light yellowish brown gravelly coarse sandy loam
12 to 20 inches - very pale brown very gravelly loamy sand
20 to 60 inches - dark gray very gravelly coarse sand
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 3 inches
Drainage class: somewhat excessively
Water table: none
Flooding hazard: none
Kw factor: 0.24
T factor: 3

ABLA/CARU,CARU Koffgo, warm

Setting
Slopes: 35 to 60 percent
Landscape position: draws

Vegetation Features
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., Douglas-fir/pinegrass community or quaking aspen/pinegrass c.t. are commonly supported.
Timber yield capability class: low

Soil Features
Name: Koffgo, warm
Classification: Loamy-skeletal, mixed Dystric Cryochrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
0 to 12 inches - pale brown gravelly silt loam
12 to 25 inches - light gray very gravelly loam
25 to 38 inches - light gray very gravelly sandy loam
38 to 60 inches - white extremely gravelly loamy sand
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 2.5 inches
Drainage class: well
Water table: none

Flooding hazard: none
Kw factor: 0.1
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 35 to 60 percent
Landscape position: sideslopes and draws
Potential natural vegetation:
Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: The Douglas-fir/whortleleaf snowberry h.t. and communities dominated by whortleleaf snowberry, white spirea, mesic forbs and native or non-native grasses are commonly supported.
Soils: Soils like Koffgo, warm that have dark colored surface layers greater than 16 inches thick and a neutral reaction (pH) throughout the profile. (Povey soils)

Inclusion 2
Slope: 15 to 45 percent
Landscape position: toeslopes and bottom of drainageways
Potential natural vegetation: subalpine fir/blue huckleberry h.t., blue huckleberry phase
Present vegetation: The Douglas-fir/blue huckleberry community and lodgepole pine/blue huckleberry c.t. are commonly supported.
Soils: Soils like Koffgo, warm that are more moist. (Koffgo, humid soils)

Management and Limitations

- Revegetating cut and fill slopes is severely limited on the PSME/SPBE2 Lasac, warm ecological type because of slope, the soils are too rocky, and the subsoil and substratum layers are erodable.
- Revegetating with grass or shrubs is severely limited on this map unit because of slope.
- Off-road vehicle use, developed recreation sites and paths and trails are severely limited on this map unit because of slope.
- The use of heavy equipment for woodland management is severely limited on the Koffgo, warm soils because of slope.
- Revegetating cut and fill slopes is severely limited on the ABLA/CARU,CARU Koffgo, warm ecological type because of slope and the soils are too rocky.
- Shallow excavations are severely limited on the Koffgo, warm soils because of slope and the soils are too rocky.

1250 -- PSME/ARTRV Povey

South facing foothills and canyon sideslopes adjacent to the forested zone are commonly represented. The unit occupies the moist end of the shrub steppe zone and is transitional to the forested zone. Foothill slopes are strongly dissected in a parallel pattern by shallow draws and low ridges. The ridges commonly have a pattern of long, rolling dipslopes and short, moderately steep scarpslopes. The canyon sideslopes are commonly south facing and convex.

Map Unit Setting
Subsection: Centennial Mountains, Island Park
Position on the landscape: foothills, canyons
Elevations: 5300 to 7500 feet
Average annual precipitation: 19 inches
Average annual air temperature: 39 degrees F.
Geology: volcanic

Map Unit Composition
85 percent - PSME/ARTRV Povey ecological type
15 percent - contrasting inclusions

PSME/ARTRV Povey

Setting
Slopes: 4 to 30 percent
Landscape position: sideslopes

Vegetation Features
Potential natural vegetation:
Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. and Douglas-fir/whortleleaf snowberry h.t. are present. Communities dominated by mountain big sagebrush, snowbrush ceanothus, or whortleleaf snowberry and needleandthread or California brome are commonly supported. Widely dispersed seedling through pole sized trees of Douglas-fir occur in some areas of shrub dominated communities.
Timber yield capability class: low

Soil Features
Name: Povey
Classification: Loamy-skeletal, mixed Pachic Cryoborolls
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
0 to 27 inches - dark grayish brown gravelly loam
27 to 39 inches - dark grayish brown very gravelly sandy loam
39 to 60 inches - pale brown extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 6 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.2
T factor: 5

Contrasting Inclusions

Inclusion 1
Slope: 2 to 15 percent
Landscape position: toes of scarpslopes (commonly associated with scoured positions)
Potential natural vegetation: quaking aspen-lodgepole pine/whortleleaf snowberry c.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: The mountain big sagebrush/needleandthread community and communities dominated by weedlike forbs are commonly supported.
Soils: Soils that have less than 35 percent rock fragments throughout the profile and are less than 20 inches deep to bedrock. (Spliten soils)

Inclusion 2
Slope: 2 to 8 percent
Landscape position: summits and shoulders
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: Communities dominated by mountain big sagebrush, whortleleaf snowberry or snowbrush ceanothus and bluebunch wheatgrass, needleandthread or California brome are commonly supported. Widely dispersed seedling through medium sized trees of Douglas-fir occur in some areas.
Soils: Soils like Povey that are 20 to 40 inches deep to bedrock.

Inclusion 3
Slope: 2 to 20 percent
Landscape position: toes of scarpslopes (commonly associated with depositional positions) and sideslopes
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t.
Present vegetation: The Douglas-fir/whortleleaf snowberry h.t. and communities dominated by sapling sized quaking aspen, whortleleaf snowberry and native or non-native grasses are commonly supported.
Soils: Soils like Povey that have 1 to 5 percent boulders on the surface and throughout the profile.

Inclusion 4
Slope: 4 to 20 percent
Landscape position: sideslopes, benches and draws
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the Douglas-fir/whortleleaf snowberry h.t. and the mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. are commonly supported. The quaking aspen/Saskatoon serviceberry-whortleleaf snowberry /pinegrass c.t. is represented. Communities dominated by mountain big sagebrush, whortleleaf snowberry or snowbrush ceanothus and bluebunch wheatgrass, needleandthread or California brome are also present. Seedling through medium sized trees of Douglas-fir occur in some areas of shrub dominated communities.
Soils: Soils like Povey that have very gravelly sandy clay loam or clay loam textures in the subsoil layers.

Inclusion 5
Slope: 30 to 50 percent
Landscape position: sideslopes
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t and the Douglas-fir/whortleleaf

snowberry h.t. are commonly supported. Communities dominated by mountain big sagebrush, whortleleaf snowberry, or snowbrush ceanothus and bluebunch wheatgrass, needleandthread, or California brome are also supported. Widely dispersed seedling through medium sized trees of Douglas-fir occur in some areas of shrub dominated communities.

Soils: Povey soils are represented.

Management and Limitations

PSME/ARTRV Povey

• The PSME/ARTRV Povey ecological type occupies positions just below the present forested zone. These positions appear to be in a broad transitional area between the shrub steppe and forested zones. The supported vegetation may shift from shrub steppe to woodland communities, or vice versa, in response to long term fluctuations in precipitation and temperature, fire history, or recent use and management activites. Due to these fluctuations, both the mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. and the Douglas-fir/whortleleaf snowberry h.t. could be considered as potental vegetation for these transitional positions. Recurring disturbance or warm, dry periods will produce the shrub steppe communities. Prolonged periods with little disturbance, absence of fire or cool, moist periods will produce the woodland communities.

1270 -- ABLA/Meadow Mosaic Rhylow, high elevation - Rock outcrop complex

Mountain sideslopes and escarpments of plateaus in a broad transition between the forested and alpine zones are commonly represented. Mosaics with characteristics of both upper elevation forested communities and subalpine meadow communities are common. Slopes are complex. They are lightly to strongly dissected by low spur ridges, shallow draws and irregular bedrock controlled benches. Avalanche chutes are common in some areas.

Map Unit Setting

Subsection: Centennial Mountains
Position on the landscape: mountains and escarpments of plateaus
Elevations: 7600 to 10000 feet
Average annual precipitation: 33 inches
Average annual air temperature: 32 degrees F.
Geology: volcanic

Map Unit Composition

65 percent - ABLA/Meadow Mosaic Rhylow, high elevation ecological type
15 percent - rock outcrop ecological type
20 percent - contrasting inclusions

ABLA/Meadow Mosaic Rhylow, high elevation

Setting

Slopes: 25 to 60 percent
Landscape position: all positions

Vegetation Features

Potential natural vegetation: subalpine fir/mountain meadow mosaic
Present vegetation: The present vegetation varies from uniform communities to a mosaic of the following habitat types and communities: subalpine fir/gooseberry currant h.t., whitebark pine phase; subalpine fir/heartleaf arnica h.t., heartleaf arnica phase; big sagebrush/California brome h.t.; big sagebrush/elk sedge h.t.; and communities dominated by native grasses or mesic forbs. Forested communities occupy west and east facing sideslopes, mosaics occupy south facing sideslopes and meadows occupy snowdrift positions along dominant ridges.
Timber yield capability class: low

Soil Features

Name: Rhylow, high elevation
Classification: Loamy-skeletal, mixed Typic Cryumbrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
0 to 30 inches - brown gravelly loam
30 to 37 inches - dark yellowish brown very gravelly loam
37 to 60 inches - dark yellowish brown extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 6.5 inches

Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.17
T factor: 4

Rock outcrop

Setting

Landscape position: all positions

Comments

Rock outcrops occur as near surface level exposures to broken escarpments 20 feet or more in height.

Contrasting Inclusions

Inclusion 1

Slope: 15 to 50 percent
Landscape position: irregular benches and spur ridges
Potential natural vegetation: subalpine fir/mountain meadow mosaic
Present vegetation: The present vegetation varies from uniform communities to an irregular mosaic of the following habitat types and communities: subalpine fir/gooseberry currant h.t., whitebark pine phase; big sagebrush/California brome h.t.; big sagebrush/elk sedge h.t.; and communities dominated by native grasses or mesic forbs.
Soils: Soils like Rhylow, high elevation that are less than 40 inches deep to bedrock.

Inclusion 2

Slope: 15 to 70 percent
Landscape position: all positions

Potential natural vegetation: subalpine fir/mountain meadow mosaic
Present vegetation: A depauperate community of trees, shrubs, forbs and grasses that are commonly associated with the following habitat types is commonly supported: subalpine fir/gooseberry currant h.t., whitebark pine phase; big sagebrush/California brome h.t.; and big sagebrush/elk sedge h.t.
Soils: Loamy soils that are less than 10 inches deep over hard bedrock.

Inclusion 3

Landscape position: avalanche chutes and north facing sideslopes
Soils: rubble land dominated by pebbles, cobbles, stones or boulders.
Comments: Active creep and scree flows are common in areas dominated by pebbles.

Inclusion 4

Slope: 35 to 65 percent
Landscape position: north facing sideslopes
Potential natural vegetation: subalpine fir/snow prickly currant h.t., whitebark pine phase
Present vegetation: The subalpine fir/gooseberry currant h.t., whitebark pine phase is commonly supported.
Soils: Soils like Rhylow, high elevation that have dark colored surface layers less than 10 inches thick.

Inclusion 5

Slope: 25 to 60 percent
Landscape position: sideslopes above 9000 feet elevation
Potential natural vegetation: whitebark pine/Ross' sedge h.t., Ross' sedge phase
Present vegetation: The whitebark pine/Ross' sedge h.t., Ross' sedge phase is commonly supported.
Soils: Soils that are 10 to 20 inches deep to substratum layers having very gravelly loamy sand or coarse sand textures.
Comments:
This inclusion was observed only on Baldy and Slide Mountains.

Management and Limitations

- Off-road vehicle use and development of recreation sites are severely limited on this map unit because of slope, and short growing and reproductive seasons.
- Establishing tree seedlings is severely limited on the south facing sideslopes and on ridges of this map unit due to seedling mortality. The ecological type on these positions is droughty because of the strong southerly aspects and exposure to solar radiation and wind. Natural subalpine fir establishment appears to occur in the shade of whitebark pine. Once a stand or small grove of subalpine fir is established, it appears to be self sustaining.
- The use of heavy equipment for woodland or rangeland management is severely limited on this map unit because of slope.

ABLA/Meadow Mosaic Rhylow, high elevation

- Revegetating cut and fill slopes is severely limited on the ABLA/Meadow Mosaic Rhylow, high elevation ecological type because the soils are too rocky and the growing and reproductive

seasons are short.

1280 -- Rubble land - Depauperate Alpine Forb Meadow Typic Cryochrepts - Rock outcrop complex

Very steep, high relief mountain sideslopes occurring above the forested zone are commonly represented. Cirque headwalls and mountain peaks are common. When viewed from a distance the unit has the appearance of bare rock. Both active and stable slopes are represented.

Map Unit Setting
Subsection: Lemhi-Medicine Lodge, Centennial Mountains
Position on the landscape: mountains
Elevations: 8800 to 12200 feet
Average annual precipitation: 30 inches
Average annual air temperature: 35 degrees F.
Geology: limestone

Map Unit Composition
50 percent - rubble land ecological type
20 percent - depauperate alpine forb meadow Typic Cryochrepts ecological type
15 percent - rock outcrop ecological type
15 percent - contrasting inclusions

Rubble land

Setting
Landscape position: sideslopes

Vegetation Features
Present vegetation: Lichens and rock spirea are commonly supported.

Soil Features
Name: rubble land

Comments
Rubble land consists of pebbles, cobbles, stones or boulders on very steep (greater than 45 percent) slopes in this unit. Active creep and scree flows are common on concave slopes that are dominated by pebbles.

Depauperate Alpine Forb Meadow Typic Cryochrepts

Setting
Slopes: 40 to 70 percent
Landscape position: sideslopes

Vegetation Features
Present vegetation: Depauperate alpine forb meadow communities are commonly supported. Species dominance varies with geographic areas and aspect. South facing slopes support species with more drought tolerance and communities with less total cover than north facing slopes. Communities dominated by the following species were observed: Hayden's clover, smooth larkspur, Nuttall's sandwort, Tweedy's ivesia, rock sedge, Sandberg bluegrass, Michaux's sagewort, common twinpod, Cusick's giant hyssop, gooseberry currant and green rabbitbrush.
Timber yield capability class: none

Soil Features
Name: Typic Cryochrepts
Classification: Typic Cryochrepts
Parent material: colluvium derived from limestone
Typical profile:
0 to 2 inches - pale brown extremely gravelly sandy loam
2 to 8 inches - brown very gravelly sandy loam
8 to 36 inches - pale brown extremely cobbly sandy loam
36 inches to bedrock - fractured limestone bedrock
Depth class: moderately deep through very deep
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 1 inches
Available water capacity, surface to 60 inches: about 1.5 inches
Drainage class: somewhat excessively
Water table: none
Flooding hazard: none
Kw factor: 0.05
T factor: 2

Comments
The Depauperate Alpine Forb Meadow Typic Cryochrepts ecological type commonly occurs in an irregular mosaic with rubble land. This mosaic adds to the depauperate appearance of slopes supporting this ecological type. This component occurs on slopes that are slightly

more stable than areas having continuous rubble land. Such areas include convex sideslopes with cobbles or stones dominating the rubble land, spur ridges and subtle bedrock controlled benches.

Rock outcrop

Setting
Landscape position: all positions

Soil Features
Name: rock outcrop

Comments
Rock outcrops in this unit consist of surface level exposures to irregular cliffs 200 or more feet in height. Rock outcrops are most abundant on spur ridges, north facing slopes and peaks rising above mountain saddles.

Contrasting Inclusions

Inclusion 1
Slope: 4 to 35 percent
Landscape position: summits and saddles
Present vegetation: Turf communities dominated by rock sedge, blackroot sedge, timberline bluegrass, Cusick's bluegrass or Idaho fescue were observed.
Soils: Soils like the Typic Cryochrepts that have dark colored surface layers greater than 7 inches thick. (Fritz, high elevation soils)

Inclusion 2
Slope: 40 to 70 percent
Landscape position: spur ridges in the lower elevation range of the unit
Potential natural vegetation: Krummholz communities
Present vegetation: Krummholz communities are commonly supported. Species dominance varies with geographic area and aspect. Communities dominated by Engelmann's spruce, subalpine fir, whitebark pine or limberpine were observed.
Soils: Soils like the Typic Cryochrepts that are more moist and less exposed to wind.

Management and Limitations

- The avalanche hazard is severe on this map unit because of slope, exposed landscape positions and annual snowpack.
- Areas of rubble land dominated by pebbles and occurring in concave positions have active creep and scree flows. Slippage on these unstable slopes severely limits fencing, paths, shallow excavations for roadways or landings, and revegetating cut and fill slopes.
- Revegetating cut and fill slopes is severely limited on areas of Depauperate Alpine Forb Meadow Typic Cryochrepts in a mosaic with rubble land because of slope and the soils and rubble land are too rocky and droughty.

1307 -- PSME/VAGL Huckridge

Rolling to hilly summits of dissected tablelands in the forested zone are commonly represented. The slopes are lightly dissected in dendritic or parallel patterns by shallow drainageways. Bowls on the northeast side of crescent shaped ridges are common. Relief is less than 100 feet.

Map Unit Setting
Subsection: Island Park
Position on the landscape: dissected tablelands
Elevations: 5600 to 6700 feet
Average annual precipitation: 23 inches
Average annual air temperature: 38 degrees F.
Geology: eolian

Map Unit Composition
90 percent - PSME/VAGL Huckridge ecological type
10 percent - contrasting inclusions

PSME/VAGL Huckridge

Setting
Slopes: 4 to 20 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: Douglas-fir/blue huckleberry h.t.
Present vegetation: The Douglas-fir/blue huckleberry h.t., lodgepole pine/grouse whortleberry c.t. and lodgepole pine/blue huckleberry c.t. are present. The lodgepole pine/pinegrass and lodgepole pine/elk sedge c.t.s or communities dominated by lodgepole pine and non-native grasses are supported in plantations and regenerating clearcuts. Communities dominated by pinegrass, elk sedge or non-native grasses are supported in recent clearcut and scarified areas.
Timber yield capability class: moderate

Soil Features

Name: Huckridge
Classification: Fine-silty, mixed Typic Paleboralfs
Parent material: local alluvium derived dominantly from loess
Typical profile:
1 to 0 inches - forest litter
0 to 3 inches - light brownish gray silt loam
3 to 26 inches - pale brown silt loam
26 to 39 inches - brown and very pale brown silt loam
39 to 70 inches - light yellowish brown silt loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 12 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.43
T factor: 5

Contrasting Inclusions

Inclusion 1
Slope: 20 to 35 percent
Landscape position: short sideslopes of bowls and incised drainageways
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/blue huckleberry c.t. and the lodgepole pine/grouse whortleberry c.t. are commonly supported.
Soils: Soils like Huckridge that are more moist and cool. (Huckridge, humid soils)

Inclusion 2
Slope: 1 to 4 percent
Landscape position: narrow bottoms of drainageways
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Diverse riparian communities dominated by willows, grasses or sedges are commonly supported. Geyer's willow, Booth's willow, bluejoint and beaked sedge have been identified. Other species as dominants are also represented.
Soils: Soils like Huckridge that are somewhat poorly or poorly drained.

Inclusion 3
Slope: 4 to 20 percent
Landscape position: south facing shoulders and spur ridges
Potential natural vegetation: Douglas-fir/pinegrass h.t., pinegrass phase
Present vegetation: The quaking aspen-lodgepole pine/whortleleaf snowberry c.t.; quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/pinegrass c.t. or quaking aspen/whortleleaf snowberry/pinegrass c.t. are commonly supported.
Soils: Soils that have dark colored surface layers 4 to 20 inches thick and have 5 to 65 percent pebbles or cobbles throughout the profile.

Management and Limitations

PSME/VAGL Huckridge

- Establishing tree seedlings is severely limited on the PSME/VAGL Huckridge ecological type due to plant competition. The surface layers of the soil have a high available water capacity and are medium textured. Following clearcutting, pinegrass increases without scarification and elksedge or non-native grasses increase with scarification.
- The use of heavy equipment for woodland management is severely limited on the PSME/VAGL Huckridge ecological type because the soils are erodible and have a potential for compaction.
- Off-road vehicle use is severely limited on the Huckridge soils because the soils are erodible and have a potential for compaction.
- Paths and trails are severely limited on the Huckridge soils because the soils have a thin surface, the subsurface layers are erodible and the subsoil layers have slow percolation.
- Unsurfaced roads and landings are severely limited on the Huckridge soils because the soils have low strength and are erodible. During moist soil conditions the soils rut from vehicle use. These ruts may concentrate runoff from snowmelt and rain events, increasing the potential for gully erosion. Moist soil conditions commonly occur in late spring to early summer and in the autumn before the ground freezes.
- Two to eight inch thick dust layers have been observed in heavy traffic areas on the Huckridge soils during late summer and early autumn. These dust layers may become saturated with water during snowmelt periods and erode.
- Exposed subsurface layers of the Huckridge soils have a very high potential for soil erosion from water. Exposed conditions may occur on freshly cut or unsurfaced roads, landings, barrow pits, cutbanks, paths and trails, or other disturbed areas.

• The potential for soil compaction is high on the Huckridge soils during periods of high soil moisture. Periods of high soil moisture commonly occur in late spring to early summer and in the autumn before the ground freezes. A one to two inch thick compaction pan beginning at surface level to depths of 12 inches has been observed in some areas.

1313 -- ARTVR/FEID Nurkey

Incompletely defined at time of printing.

1400 -- ARTRV/FEID Trude

Outwash plains in the forested zone are commonly represented. This droughty map unit occupies remnant sand and gravel bars. Shrub steppe communities are commonly supported. Slopes are nearly level or undulating. A seasonal water table is at depths greater than 6 feet.

Map Unit Setting
Subsection: Island Park
Position on the landscape: outwash plains
Elevations: 6200 to 6400 feet
Average annual precipitation: 28 inches
Average annual air temperature: 37 degrees F.
Geology: mixed alluvium

Map Unit Composition
95 percent - ARTRV/FEID Trude ecological type
5 percent - contrasting inclusions

ARTRV/FEID Trude

Setting
Slopes: 0 to 4 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush or gray low sagebrush and bluebunch wheatgrass or mesic forbs are commonly supported

Timber yield capability class: none

Soil Features
Name: Trude
Classification: Sandy-skeletal, mixed Dystric Cryochrepts
Parent material: mixed alluvium
Typical profile:
0 to 8 inches - brown gravelly coarse sandy loam
8 to 21 inches - light yellowish brown gravelly coarse sandy loam
21 to 60 inches - variegated stratified coarse sand to extremely gravelly coarse sand
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 3.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.2
T factor: 4

Comments
The low sagebrush communites are associated with slight depressions.

Contrasting Inclusions

Inclusion 1
Slope: 0 to 4 percent
Landscape position: slightly lower terraces
Potential natural vegetation: lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., or lodgepole pine/grouse whortleberry c.t.
Present vegetation: The lodgepole pine/pinegrass c.t. is commonly supported.
Soils: Soils like Trude that are moderately well drained. (Perfa soils)

Management and Limitations

ARTRV/FEID Trude
• Establishing tree seedlings is severely limited on the ARTRV/FEID Trude ecological type due to seedling mortality. The soils are droughty.
• Pond reservoir areas are severely limited on the Trude soils because of seepage.
• Septic tank absorption fields are severely limited on the Trude soils because the soils are a poor filter.
• Shallow excavations are severely limited on the Trude soils because the cutbanks collapse.

• Use as soil reconstruction material for drastically disturbed areas is severely limited on the Trude soils because the soils are too sandy and droughty.

1401 -- ARTRV/FEID Trude - ABLA/CACA4,CACA4 Bootjack association

Outwash plains in the forested zone are commonly represented. The unit occupies stream terraces adjacent to the Henry's Fork of the Snake River. The higher terraces are droughty, greater than 6 feet deep to a seasonal water table and support shrub steppe communities. The lower terraces are frequently flooded, have a seasonal water table and support riparian communities.

Map Unit Setting
Subsection: Island Park
Position on the landscape: outwash plains
Elevations: 6100 to 6200 feet
Average annual precipitation: 20 inches
Average annual air temperature: 38 degrees F.
Geology: mixed alluvium

Map Unit Composition
45 percent - ARTRV/FEID Trude ecological type
40 percent - ABLA/CACA4,CACA4 Bootjack ecological type
15 percent - contrasting inclusions

ARTRV/FEID Trude

Setting
Slopes: 0 to 2 percent
Landscape position: higher stream terraces

Vegetation Features
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: Communities dominated by mountain big sagebrush and native and non-native grasses are commonly supported.
Timber yield capability class: none

Soil Features
Name: Trude
Classification: Sandy-skeletal, mixed Dystric Cryochrepts
Parent material: mixed alluvium
Typical profile:
0 to 8 inches - brown gravelly coarse sandy loam
8 to 21 inches - light yellowish brown gravelly coarse sandy loam
21 to 60 inches - variegated stratified coarse sand to extremely gravelly coarse sand
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 3.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.2
T factor: 4

ABLA/CACA4,CACA4 Bootjack

Setting
Slopes: 0 to 2 percent
Landscape position: lower stream terraces and sloughs

Vegetation Features
Potential natural vegetation: subalpine fir/bluejoint h.t., bluejoint phase
Present vegetation: Communities dominated by riparian sedges and non-native grasses are commonly supported.
Timber yield capability class: low

Soil Features
Name: Bootjack
Classification: Fine-loamy over sandy or sandy skeletal, mixed Aeric Cryaquepts
Parent material: alluvium derived from diatomaceous earth materials with obsidian sands in lower profile
Typical profile:
2 to 0 inches - forest litter
0 to 7 inches - light gray silt loam
7 to 15 inches - white loam
15 to 60 inches - variegated stratified coarse sand and fine sand
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 3 inches
Available water capacity, surface to 60 inches: about 4 inches
Drainage class: poorly
Water table: 0 to 18 inches
Flooding hazard: frequent

Kw factor: 0.49
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 0 to 1 percent
Landscape position: lowest sloughs
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Riparian communities dominated by sedges are commonly supported. Beaked sedge has been identified. Other species are also represented.
Soils: Very poorly drained soils that have thick layers of peat on the surface. (Tepete soils)

Inclusion 2
Slope: 0 to 2 percent
Landscape position: lower stream terraces and sloughs
Potential natural vegetation: subalpine fir/bluejoint h.t., bluejoint phase
Present vegetation: Communities dominated by riparian sedges, native and non-native grasses are commonly supported.
Soils: Soils like Bootjack that have very or extremely cobbly coarse sand textures in the substratum.

Inclusion 3
Slope: 0 to 2 percent
Landscape position: higher stream terraces
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: Communities dominated by mountain big sagebrush and native or non-native grasses are commonly supported.
Soils: Soils like Trude that have very or extremely cobbly coarse sand textures throughout the substratum.

Management and Limitations

- The ABLA/CACA4,CACA4 Bootjack ecological type has the potential for frequent floods of long duration during the peak snowmelt periods of April through June.
- Present vegetation, depth to seasonal high water table and flooding potential vary with each other and with perennial stream flows in the dynamic riparian systems of this map unit. Current perennial stream flows are governed in part by release from Island Park Dam.

ARTRV/FEID Trude
- Establishing tree seedlings is severely limited on the ARTRV/FEID Trude ecological type due to seedling mortality. The soils are droughty.
- Pond reservoir areas are severely limited on the Trude soils because of seepage.
- Septic tank absorption fields are severely limited on the Trude soils because the soils are a poor filter.
- Shallow excavations are severely limited on the Trude soils because the cutbanks collapse.
- Use as soil reconstruction material for drastically disturbed areas is severely limited on the Trude soils because the soils are too sandy and droughty.

ABLA/CACA4,CACA4 Bootjack
- Septic tank absorption fields are severely limited on the Bootjack soils because of wetness and flooding and the substratum layers are a poor filter.
- The use of heavy equipment for woodland or rangeland management, off-road vehicle use and paths and trails are severely limited on the Bootjack soils because of seasonal wetness and the potential for soil compaction.
- Tree windthrow hazard is severe on the ABLA/CACA4,CACA4 Bootjack ecological type because of wetness.
- The potential for soil compaction is severe on the ABLA/CACA4,CACA4 Bootjack ecological type because of wetness and the surface and subsoil layers have low strength.
- Pond reservior areas are severely limited on the Bootjack soils because of seepage in the substratum layers.
- Fencing is severely limited on the Bootjack soils because of seasonal wetness and the substratum layers are too sandy.
- Developed recreation sites are severely limited on the Bootjack soils because of seasonal wetness and flooding.
- Establishing tree seedlings is severely limited on the ABLA/CACA4,CACA4 Bootjack ecological type due to plant competition and seasonal wetness.
- Shallow excavations are severely limited on the Bootjack soils because of wetness and the cutbanks collapse.
- Embankments, dikes and levees are severely limited on the Bootjack soils because of wetness and seepage.
- Livestock grazing or trailing is limited during the spring and summer on the ABLA/CACA4,CACA4 Bootjack ecological type because of wetness and the potential for soil compaction.
- Unsurfaced roads and parking areas are

severely limited on the Bootjack soils because of wetness, flooding and low strength.

1410 -- PSME/SYAL Cherpi - PSME/ARTRV Skyway complex

South facing foothill and mountain sideslopes in the forested zone are commonly represented. The unit occupies the dry end of the forested zone and is transitional to the shrub steppe zone. The topography is characterized by dipslopes that are strongly dissected by drainageways in a parallel pattern. Slopes are convex.

Map Unit Setting
Subsection: Island Park
Position on the landscape: foothills and mountains
Elevations: 5500 to 5800 feet
Average annual precipitation: 20 inches
Average annual air temperature: 38 degrees F.
Geology: volcanic

Map Unit Composition
45 percent - PSME/SYAL Cherpi ecological type
35 percent - PSME/ARTRV Skyway ecological type
20 percent - contrasting inclusions

PSME/SYAL Cherpi

Setting
Slopes: 12 to 60 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation:
Douglas-fir/common snowberry h.t.
Present vegetation: The quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/pinegrass c.t. is commonly supported.
Timber yield capability class: moderate

Soil Features
Name: Cherpi
Classification: Ashy-skeletal Vitrandic Cryoborolls
Parent material: local alluvium or colluvium derived from loess and rhyolitic tuff
Typical profile:
1 to 0 inches - forest litter
0 to 3 inches - very dark brown gravelly loam
3 to 11 inches - brown very gravelly loam
11 to 44 inches - light reddish brown very gravelly sandy loam
44 to 60 inches - light reddish brown extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 10 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.15
T factor: 3

PSME/ARTRV Skyway

Setting
Slopes: 4 to 60 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation:
Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the Douglas-fir/whortleleaf snowberry h.t. and communities dominated by whortleleaf snowberry or snowbrush ceanothus and bluebunch wheatgrass, California brome, elk sedge or weedlike forbs are commonly supported.
Timber yield capability class: very low

Soil Features
Name: Skyway
Classification: Coarse-loamy, mixed Pachic Cryoborolls
Parent material: local alluvium or colluvium derived from eolian materials and rhyolite
Typical profile:
0 to 18 inches - brown sandy loam
18 to 32 inches - brown sandy loam
32 inches - hard rhyolite bedrock
Depth class: moderately deep (20 to 40 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to bedrock: about 6.5 inches
Drainage class: well
Water table: none
Flooding hazard: none

Kw factor: 0.28
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 4 to 45 percent
Landscape position: sideslopes and bottoms of drainageways
Potential natural vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The quaking aspen/whortleleaf snowberry/pinegrass c.t. and communities dominated by Hood's sedge, valley sedge or other native and non-native grasses are commonly supported.
Soils: Soils like Skyway that are greater than 40 inches deep to bedrock.

Inclusion 2
Slope: 4 to 40 percent
Landscape position: all positions
Potential natural vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/ pinegrass c.t. is commonly supported.
Soils: Soils like Cherpi that are 20 to 40 inches deep to fractured bedrock.

Inclusion 3
Landscape position: all positions
Soils: Rock outcrops occurring as surface level exposures to irregular cliffs.

Management and Limitations

- Many management activities and uses are severely limited on this map unit because of slope. These activities and uses include: use of heavy equipment for rangeland or woodland management; off-road vehicle use; pond reservoir areas and developed recreation sites.

PSME/SYAL Cherpi

- Fencing is severely limited on the Cherpi soils because the soils are too gravelly.
- Establishing Douglas-fir or lodgepole pine seedlings is severely limited on the PSME/SYAL Cherpi ecological type due to plant competition and seedling mortality. The average annual precipitation is limiting for Douglas-fir and lodgepole pine. The grass, forbs and shrubs of the understories compete for available water.

PSME/ARTRV Skyway

- Establishing Douglas-fir or lodgepole pine seedlings is severely limited on the PSME/ARTRV Skyway ecological type due to plant competition and seedling mortality. The average annual precipitation is limiting for Douglas-fir and lodgepole pine. Grass, forbs and shrubs in the supported communities compete with the tree seedlings for available water and space.

1430 -- PSME/ARTRV Skyway

South facing foothill and mountain sideslopes occurring in a broad transitional area between the shrub steppe and forested zones are commonly represented. The topography is characterized by dipslopes that are moderately dissected by drainageways in a parallel pattern. Planar to convex summits are represented. Sideslopes of drainages are steep and complex. Rock outcrops occur as surface level exposures on summits and as cliffs on sideslopes of drainageways.

Map Unit Setting
Subsection: Island Park
Position on the landscape: foothills and mountains
Elevations: 5600 to 6300 feet
Average annual precipitation: 20 inches
Average annual air temperature: 38 degrees F.
Geology: volcanic

Map Unit Composition
85 percent - PSME/ARTRV Skyway ecological type
15 percent - contrasting inclusions

PSME/ARTRV Skyway

Setting
Slopes: 4 to 30 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the Douglas-fir/whortleleaf snowberry h.t. and communities dominated by bigtooth maple,

mountain big sagebrush or whortleleaf snowberry and bluebunch wheatgrass, California brome, elk sedge or weedlike forbs are commonly supported.
Timber yield capability class: very low

Soil Features
Name: Skyway
Classification: Coarse-loamy, mixed Pachic Cryoborolls
Parent material: local alluvium or colluvium derived from eolian materials and rhyolite
Typical profile:
0 to 18 inches - brown sandy loam
18 to 32 inches - brown sandy loam
32 inches - hard rhyolite bedrock
Depth class: moderately deep (20 to 40 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to bedrock: about 6.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.28
T factor: 2

Contrasting Inclusions
Inclusion 1
Landscape position: all positions
Soils: Rock outcrops occurring as surface level exposures to irregular cliffs.

Inclusion 2
Slope: 4 to 50 percent
Landscape position: all positions
Potential natural vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The Douglas-fir/common snowberry h.t. and quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/pinegrass c.t. are commonly supported.
Soils: Soils like Skyway that are greater than 40 inches deep to bedrock.

Management and Limitations
PSME/ARTRV Skyway
• Establishing Douglas-fir or lodgepole pine seedlings is severely limited on the PSME/ARTRV Skyway ecological type due to plant competition and seedling mortality. The average annual precipitation is limiting for Douglas-fir and lodgepole pine. Grass, forbs and shrubs in the supported communities compete with the tree seedlings for available water and space.

1506 -- PSME/SYAL Lag, till substratum

Ground moraines in the forested zone are commonly represented. The topography is characterized by undulating to rolling slopes that are lightly dissected by low relief knolls, end moraines, shallow draws, melt water channels and seasonally ponded kettles.

Map Unit Setting
Subsection: Island Park
Position on the landscape: ground moraines
Elevations: 5600 to 6100 feet
Average annual precipitation: 23 inches
Average annual air temperature: 39 degrees F.
Geology: Bull Lake Glaciation

Map Unit Composition
80 percent - PSME/SYAL Lag, till substratum ecological type
20 percent - contrasting inclusions

PSME/SYAL Lag, till substratum
Setting
Slopes: 4 to 15 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: A mosaic of the following communities is commonly supported: Douglas-fir/common snowberry h.t.; quaking aspen-Douglas-fir/Saskatoon serviceberry c.t.; quaking aspen-Douglas-fir/whortle leaf snowberry c.t.; and communities dominated by mesic forbs.
Timber yield capability class: moderate

Soil Features
Name: Lag, till substratum
Classification: Loamy-skeletal, mixed Typic Cryoborolls
Parent material: local alluvium derived from glacial till and loess
Typical profile:
1 to 0 inches - forest litter
0 to 14 inches - brown silt loam

14 to 35 inches - yellowish brown very gravelly loam
35 to 48 inches - light yellowish brown very gravelly loam
48 to 60 inches - light yellowish brown very gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 3 inches
Available water capacity, surface to 60 inches: about 6.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.17
T factor: 3

Contrasting Inclusions

Inclusion 1
Slope: 4 to 15 percent
Landscape position: all positions
Potential natural vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The Douglas-fir/common snowberry h.t.; quaking aspen-Douglas fir/Saskatoon serviceberry c.t.; and quaking aspen-Douglas-fir/whortleleaf snowberry c.t. are commonly supported.
Soils: Soils like Lag, till substratum that are 20 to 40 inches deep over dense basal till.

Inclusion 2
Slope: 0 to 4 percent
Landscape position: shallow swales and depressions
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Diverse riparian communities dominated by willows, native grasses or sedges are commonly supported. Booth's willow, Geyer's willow, beaked sedge and bluejoint have been identified. Other dominant species are also represented.
Soils: Soils like Lag, till substratum that are somewhat poorly drained and have seasonal ponding.

Inclusion 3
Slope: 15 to 25 percent
Landscape position: short sideslopes of end moraines, knolls, and incised drainageways
Potential natural vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The Douglas-fir/common snowberry h.t.; quaking aspen-Douglas-fir/Saskatoon serviceberry c.t. and quaking aspen-Douglas-fir/whortleleaf snowberry c.t. are commonly supported.
Soils: Lag, till substratum soils are represented.

Management and Limitations

PSME/SYAL Lag, till substratum

- Establishing tree seedlings is severely limited on the PSME/SYAL Lag, till substratum ecological type due to plant competition. The surface layers of the soil are medium textured and have a high available water capacity.
- Pond reservoir areas are severely limited on the Lag, till substratum soils because of seepage in the substratum layers.

1516 -- ABLA/VAGL,VASC Winegar

Ground moraines in the forested zone are commonly represented. The topography is characterized by a matrix of low relief knolls and kettles having short, rolling slopes. Perennial and seasonally ponded kettles are common.

Map Unit Setting
Subsection: Madison-Pitchstone Plateaus
Position on the landscape: ground moraines
Elevations: 6200 to 6650 feet
Average annual precipitation: 32 inches
Average annual air temperature: 37 degrees F.
Geology: Pinedale Glaciation

Map Unit Composition
80 percent - ABLA/VAGL,VASC Winegar ecological type
20 percent - contrasting inclusions

ABLA/VAGL,VASC Winegar

Setting
Slopes: 4 to 15 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/blue

huckleberry or lodgepole pine/grouse whortleberry c.t.s and Douglas-fir/blue huckleberry communities are supported on lightly or nondisturbed areas. The lodgepole pine/elk sedge or lodgepole pine/pinegrass c.t.s are supported in plantations and regenerating clearcuts. Communities dominated by elk sedge or pinegrass are supported in recent clearcut and scarified areas.

Timber yield capability class: moderate

Soil Features

Name: Winegar
Classification: Ashy Typic Vitricryands
Parent material: local alluvium derived from glacial till and loess
Typical profile:
1 to 0 inches - forest litter
0 to 4 inches - dark yellowish brown gravelly silt loam
4 to 26 inches - yellowish brown loam
26 to 38 inches - light olive brown very gravelly sandy loam
38 to 60 inches - gray dense basal till that crushes to a very gravelly sandy loam
Depth class: moderately deep (20 to 40 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 6.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.24
T factor: 3

Contrasting Inclusions

Inclusion 1

Slope: 0 to 15 percent
Landscape position: kettles, swales and bottom of drainageways
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Diverse riparian communities dominated by willows, native grasses or sedges are commonly supported. Booth's willow, Geyer's willow, beaked sedge and bluejoint have been identified. Other species as dominants are also represented.
Soils: Soils that are somewhat poorly or poorly drained.

Inclusion 2

Slope: 4 to 15 percent
Landscape position: south facing ridges, shoulders and upper sideslopes
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/grouse whortleberry c.t. and lodgepole pine/pinegrass c.t. are commonly supported.
Soils: Soils like Winegar that are slightly drier and less than 20 inches deep over dense basal till.

Inclusion 3

Slope: 2 to 15 percent
Landscape position: bottom of draws
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/grouse whortleberry c.t. is commonly supported.
Soils: Soils like Winegar that are more cool.

Inclusion 4

Slope: 4 to 15 percent
Landscape position: all positions
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/blue huckleberry c.t. and lodgepole pine/grouse whortleberry c.t. are commonly supported.
Soils: Soils like Winegar that have greater than 20 percent cobbles or stones in the surface and subsoil layers.

Inclusion 5

Slope: 4 to 15 percent
Landscape position: south facing sideslopes
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/grouse whortleberry c.t. and lodgepole pine/pinegrass c.t. are commonly supported.
Soils: Soils like Winegar that have dark colored surface layers greater than 10 inches thick. (Bradco soils)

Management and Limitations

- Developed recreation sites are limited on some inclusion areas of this map unit because of soil wetness. Many of the kettles, swales and drainage bottons have seasonal ponding or seasonal water tables.

ABLA/VAGL,VASC Winegar

- Revegetating cut and fill slopes is severely limited on the ABLA/VAGL,VASC Winegar

ecological type because of the depth to dense basal till.

- Septic tank absorption fields, sewage lagoons and containment ponds are severely limited on the Winegar soils because of the depth to dense basal till.
- Tree windthrow hazard is moderate on the ABLA/VAGL,VASC Winegar ecological type because of the depth to dense basal till and soil wetness during snowmelt periods.
- Shallow excavations, pond reservoir areas and structures without basements are moderately limited on the Winegar soils because of the depth to dense basal till.

1518 -- ABLA/VASC,CARU Bradco

Ground moraines in the forested zone are commonly represented. The topography is characterized by undulating to rolling slopes that are lightly dissected by shallow draws and glacial melt-water channels in a dendritic pattern. Clusters of stones and boulders on the surface are common.

Map Unit Setting
Subsection: Madison-Pitchstone Plateaus
Position on the landscape: ground moraines
Elevations: 6400 to 6700 feet
Average annual precipitation: 32 inches
Average annual air temperature: 37 degrees F.
Geology: Pinedale Glaciation

Map Unit Composition
80 percent - ABLA/VASC,CARU Bradco ecological type
20 percent - contrasting inclusions

ABLA/VASC,CARU Bradco

Setting
Slopes: 4 to 15 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t. and lodgepole pine/grouse whortleberry c.t. are supported on lightly or nondisturbed areas. Communities dominated by elk sedge or pinegrass are supported on recent clearcut and scarified areas.
Timber yield capability class: moderate

Soil Features
Name: Bradco
Classification: Ashy Humic Vitricryands
Parent material: local alluvium derived from loess and glacial till
Typical profile:
2 to 0 inches - forest litter
0 to 10 inches - brown fine sandy loam
10 to 18 inches - light olive brown gravelly fine sandy loam
18 to 29 inches - yellowish brown gravelly sandy loam
29 to 36 inches - brownish yellow gravelly sandy loam
36 to 60 inches - light brownish gray dense basal till that crushes to a gravelly loamy sand
Depth class: moderately deep (20 to 40 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 3.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.17
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 15 to 35 percent
Landscape position: short north facing sideslopes
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/blue huckleberry c.t. is supported on lightly disturbed areas. Communities dominated by elk sedge or pinegrass are supported on recent clearcut and scarified areas.
Soils: Soils like Bradco that are more moist.

Inclusion 2
Slope: 8 to 35 percent
Landscape position: short south facing sideslopes
Potential natural vegetation: Douglas-fir/white spirea h.t., pinegrass phase
Present vegetation: The lodgepole pine/white spirea c.t. or Douglas-fir/white spirea h.t., pinegrass phase are supported on lightly or

nondisturbed areas. Communities dominated by elk sedge, pinegrass or white spirea are supported on recent clearcut and scarified areas.
Soils: Soils like Bradco that have greater than 35 percent rock fragments in the subsoil layers.

Inclusion 3
Slope: 4 to 15 percent
Landscape position: sideslopes and ridges
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t. is commonly supported.
Soils: Soils like Bradco that have 15 to 60 percent stones and boulders on the surface or throughout the profile.
Comments: The stones and boulders form conspicuous clusters of rock.

Inclusion 4
Slope: 0 to 2 percent
Landscape position: shallow depressions and drainageways
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Diverse riparian communities dominated by willows, native grasses or sedges are commonly supported. Booth's willow, Geyer's willow, beaked sedge and bluejoint have been identified. Other species as dominants are also represented.
Soils: Soils like Bradco that are somewhat poorly or poorly drained.

Management and Limitations

ABLA/VASC,CARU Bradco

- Revegetating cut and fill slopes is severely limited on the ABLA/VASC,CARU Bradco ecological type because of the depth to dense basal till.
- Septic tank absorption fields are severely limited on the Bradco soils because of the depth to dense basal till.
- Tree windthrow hazard is moderate on the ABLA/VASC,CARU ecological type because of the depth to dense basal till and soil wetness during snowmelt periods.
- Shallow excavations, pond reservoir areas and structures without basements are moderately limited on the Bradco soils because of the depth to dense basal till.

1570 -- ABLA/VASC,VASC Dashiki - PIAL/CARO5,PICO Lasac, dry association

Low relief, undulating to rolling plateaus in the forested zone are commonly represented. Slopes are lightly dissected by shallow, incised drainageways and clusters of low knolls.

Map Unit Setting
Subsection: Madison-Pitchstone Plateaus
Position on the landscape: plateaus
Elevations: 7200 to 8300 feet
Average annual precipitation: 50 inches
Average annual air temperature: 32 degrees F.
Geology: volcanic

Map Unit Composition
75 percent - ABLA/VASC,VASC Dashiki ecological type
15 percent - PIAL/CARO5,PICO Lasac, dry ecological type
10 percent - contrasting inclusions

ABLA/VASC,VASC Dashiki

Setting
Slopes: 2 to 12 percent
Landscape position: sideslopes, swales and ridges

Vegetation Features
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., grouse whortleberry phase
Present vegetation: The subalpine fir/grouse whortleberry h.t., grouse whortleberry phase is present. The lodgepole pine/grouse whortleberry c.t. is supported on lightly disturbed areas. The lodgepole pine/elk sedge c.t. is supported on regenerating clearcuts and in plantations. Communities dominated by elk sedge are supported in recent clearcut and scarified areas.
Timber yield capability class: low

Soil Features
Name: Dashiki
Classification: Ashy Typic Vitricryands
Parent material: local alluvium derived from loess and tephra over residuum from mixed volcanic ash and obsidian lapilli
Typical profile:
1 to 0 inches - forest litter
0 to 9 inches - brown silt loam

9 to 31 inches - light yellowish brown gravelly silt loam
31 to 37 inches - light brownish gray gravelly loamy coarse sandy loam
37 to 75 inches - gray stratified gravelly coarse sand to extremely gravelly coarse sand
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 7 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.24
T factor: 4

PIAL/CARO5,PICO Lasac, dry

Setting
Slopes: 8 to 25 percent
Landscape position: knolls and south facing sideslopes drainages

Vegetation Features
Potential natural vegetation: whitebark pine/Ross' sedge h.t., lodgepole pine phase
Present vegetation: The lodgepole pine/Ross' sedge c.t. is supported on lightly disturbed areas. Depauperate communities dominated by Ross' sedge or elk sedge are supported in recent clearcut and scarified areas.
Timber yield capability class: low

Soil Features
Name: Lasac, dry
Classification: Ashy-skeletal Vitrandic Cryochrepts
Parent material: local alluvium derived from mixed volcanic ejecta and loess
Typical profile:
0 to 6 inches - brown gravelly silt loam
6 to 12 inches - light yellowish brown gravelly coarse sandy loam
12 to 20 inches - very pale brown very gravelly loamy sand
20 to 60 inches - dark gray very gravelly coarse sand
Depth class: very deep (greater than 6o inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 3 inches
Drainage class: somewhat excessively
Water table: none
Flooding hazard: none
Kw factor: 0.2
T factor: 3

Contrasting Inclusions

Inclusion 1
Slope: 4 to 25 percent
Landscape position: north facing sideslopes of incised drainageways
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/grouse whortleberry c.t. is commonly supported.
Soils: Soils like Dashiki that have greater than 35 percent rock fragments in the subsoil layers.

Inclusion 2
Slope: 25 to 45 percent
Landscape position: south facing sideslopes of incised drainageways
Potential natural vegetation: whitebark pine/Ross' sedge h.t., lodgepole pine phase
Present vegetation: The lodgepole pine/Ross' sedge c.t. is commonly supported.
Soils: Lasac, dry soils are represented.

Inclusion 3
Slope: 4 to 35 percent
Landscape position: sideslopes, swales and ridges
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., grouse whortleberry or pinegrass phases
Present vegetation: The lodgepole pine/grouse whortleberry c.t. is supported on lightly disturbed areas. The lodgepole pine/elk sedge c.t. is supported on regenerating clearcuts and in plantations. Communities dominated by elk sedge are supported on recent clearcut and scarified areas.
Soils: Soils like Dashiki that are greater than 40 inches deep to substratum layers. (Oleo soils)

Management and Limitations

• Revegetating cut and fill slopes is severely limited on the PIAL/CARO5,PICO Lasac, dry ecological type because the soils are too rocky and the subsoil and substratum layers are erodable.

ABLA/VASC,VASC Dashiki
• Establishing tree seedlings in clearcut or burned areas is limited on the ABLA/VASC,VASC

Dashiki ecological type because of short growing seasons and increased droughtiness in large openings of the timber canopy.
- Tree windthrow hazard is moderate on the ABLA/VASC,VASC Dashiki ecological type because of the depth to substratum layers and soil wetness during snowmelt periods.
- Pond reservoir areas are severely limited on the Dashiki soils because of seepage.
- Shallow excavations are severely limited on the Dashiki soils because the cutbanks collapse.

PIAL/CARO5,PICO Lasac, dry
- Fencing is severely limited on the Lasac, dry soils because the soils are too gravelly.
- Establishing tree seedlings is severely limited on the PIAL/CARO5,PICO Lasac, dry ecological type due to seedling mortality. The soils are droughty.
- Establishing tree seedlings in clearcut or burned areas is limited on the PIAL/CARO5,PICO Lasac, dry ecological type because of short growing seasons and increased droughtiness in large openings of the timber canopy.
- The use of heavy equipment for woodland management is severely limited on the Lasac, dry soils because the soils have a thin surface and the subsoil and substratum layers are erodable.
- Severe rill or gully erosion may occur on the Lasac, dry soils during a single rain event. Exposed subsoil and substratum layers have a very high potential for soil erosion from water. Exposed soil conditions may occur on skidtrails, freshly cut or unsurfaced roads, landings, barrow pits, roadfills, cutbanks or other disturbed sites.
- Severe hydrophobic conditions in the soil surface layers of the PIAL/CARO5,PICO Lasac, dry ecological type have been observed after fires. These hydrophobic conditions increase surface runoff and the potential for rill and gully erosion on all slope positions.
- Paths and trails are severely limited on the Lasac, dry soils because the soils have a thin surface and the subsoil and substratum layers are erodable.
- Pond reservoir areas are severely limited on the Lasac, dry soils because of seepage and slope.
- Shallow excavations are severely limited on the Lasac, dry soils because the cutbanks collapse.

1573 -- ABLA/VASC Oleo - PIAL/CARO5,PICO Lasac, dry association

Low relief, undulating to rolling plateaus in the forested zone are commonly represented. This unit occupies positions recieving the highest annual precipitation and deepest snowpack of the entire survey area. The slopes are lightly dissected by shallow, incised drainageways and clusters of low knolls.

Map Unit Setting
Subsection: Madison-Pitchstone Plateaus
Position on the landscape: plateaus
Elevations: 6800 to 8200 feet
Average annual precipitation: 50 inches
Average annual air temperature: 32 degrees F.
Geology: volcanic

Map Unit Composition
75 percent - ABLA/VASC Oleo ecological type
15 percent - PIAL/CARO5,PICO Lasac, dry ecological type
10 percent - contrasting inclusions

ABLA/VASC Oleo

Setting
Slopes: 2 to 15 percent
Landscape position: sideslopes, swales and ridges

Vegetation Features
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., grouse whortleberry or pinegrass phases
Present vegetation: The lodgepole pine/grouse huckleberry c.t. is supported in lightly disturbed areas. The lodgepole pine/elk sedge c.t. is supported on regenerating clearcuts. Communities dominated by elk sedge are supported in recent clearcut or scarified areas.
Timber yield capability class: low

Soil Features
Name: Oleo
Classification: Ashy Alfic Vitricryands
Parent material: local alluvium derived from loess and tephra
Typical profile:
1 to 0 inches - forest litter
0 to 2 inches - dark grayish brown silt loam
2 to 10 inches - brown silt loam
10 to 36 inches - pale brown silt loam

36 to 60 inches - pale brown stony silt loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 4.5 inches
Available water capacity, surface to 60 inches: about 10.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.24
T factor: 5

PIAL/CARO5,PICO Lasac, dry

Setting

Slopes: 4 to 25 percent
Landscape position: knolls and south facing sideslopes of drainages

Vegetation Features

Potential natural vegetation: whitebark pine/Ross' sedge h.t., lodgepole pine phase
Present vegetation: The lodgepole pine/Ross' sedge c.t. is supported on lightly disturbed areas. Depauperate communities dominated by Ross' sedge or elk sedge are supported on clearcut and scarified areas.
Timber yield capability class: low

Soil Features

Name: Lasac, dry
Classification: Ashy-skeletal Vitrandic Cryochrepts
Parent material: local alluvium derived from mixed volcanic ejecta and loess
Typical profile:
0 to 6 inches - brown gravelly silt loam
6 to 12 inches - light yellowish brown gravelly coarse sandy loam
12 to 20 inches - very pale brown very gravelly loamy sand
20 to 60 inches - dark gray very gravelly coarse sand
Depth class: very deep (greater than 6o inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 3 inches
Drainage class: somewhat excessively
Water table: none
Flooding hazard: none
Kw factor: 2.
T factor: 3

Contrasting Inclusions

Inclusion 1

Slope: 4 to 25 percent
Landscape position: north facing sideslopes of shallow drainageways
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/grouse whortleberry c.t. is supported on lightly disturbed areas. The lodgepole pine/grouse whortleberry or lodgepole pine/elk sedge c.t.s are supported on regenerating clearcuts. Communities dominated by elk sedge are supported on recent clearcut and scarified areas.
Soils: Soils like Oleo that have greater than 35 percent rock fragments in the subsoil and substratum layers.

Inclusion 2

Slope: 2 to 12 percent
Landscape position: sideslopes, swales and ridges
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., whitebark pine phase
Present vegetation: The subalpine fir/grouse whortleberry h.t., limberpine phase is commonly supported.
Soils: Soils like Oleo that are more moist and cool.
Comments: This inclusion dominantly occurs at the upper elevation range of the map unit.

Management and Limitations

• Revegetating cut and fill slopes is severely limited on the PIAL/CARO5,PICO Lasac, dry ecological type because the soils are too rocky and the subsoil and substratum layers are erodable.

ABLA/VASC Oleo

• Establishing tree seedlings is limited on the ABLA/VASC Oleo ecological type because of short growing seasons and increased droughtiness in large openings of the timber canopy.

PIAL/CARO5,PICO Lasac, dry

• Fencing is severely limited on the Lasac, dry soils because the soils are too gravelly.
• Establishing tree seedlings is severely limited on the PIAL/CARO5,PICO Lasac, dry ecological type due to seedling mortality. The soils are

droughty.

- Establishing tree seedlings in clearcut or burned areas is limited on the PIAL/CARO5,PICO Lasac, dry ecological type because of short growing seasons and increased droughtiness in large openings of the timber canopy.
- The use of heavy equipment for woodland management is severely limited on the Lasac, dry soils because the soils have a thin surface and the subsoil and substratum layers are erodable.
- Severe rill or gully erosion may occur on the Lasac, dry soils during a single rain event. Exposed subsoil and substratum layers have a very high potential for soil erosion from water. Exposed soil conditions may occur on skidtrails, freshly cut or unsurfaced roads, landings, barrow pits, roadfills, cutbanks or other disturbed sites.
- Severe hydrophobic conditions in the soil surface layers of the PIAL/CARO5,PICO Lasac, dry ecological type have been observed after fires. These hydrophobic conditions increase surface runoff and the potential for rill and gully erosion on all slope positions.
- Paths and trails are severely limited on the Lasac, dry soils because the soils have a thin surface and the subsoil and substratum layers are erodable.
- Pond reservoir areas are severely limited on the Lasac, dry soils because of seepage and slope.
- Shallow excavations are severely limited on the Lasac, dry soils because the cutbanks collapse.

1575 -- ABLA/CARU,CARU Koffgo, warm - ABLA/VAGL,VAGL Koffgo, humid complex

Rolling to hilly plateaus in the forested zone are commonly represented. The slopes are moderately dissected by shallow drainageways in a dendritic pattern.

Map Unit Setting
Subsection: Island Park
Position on the landscape: plateaus
Elevations: 6600 to 7800 feet
Average annual precipitation: 28 inches
Average annual air temperature: 34 degrees F.
Geology: volcanic

Map Unit Composition
40 percent - ABLA/CARU,CARU Koffgo, warm ecological type
40 percent - ABLA/VAGL,VAGL Koffgo, humid ecological type
20 percent - contrasting inclusions

ABLA/CARU,CARU Koffgo, warm

Setting
Slopes: 8 to 20 percent
Landscape position: ridges and south facing sideslopes

Vegetation Features
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The lodgepole pine/elk sedge c.t., lodgepole pine/pinegrass c.t., quaking aspen/pinegrass c.t. and communities dominated by elk sedge are supported in recent clearcuts, scarified areas and plantations. The lodgepole pine/pinegrass c.t. or a Douglas-fir/pinegrass community are supported in leave strips.
Timber yield capability class: low

Soil Features
Name: Koffgo, warm
Classification: Loamy-skeletal, mixed Dystric Cryochrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
0 to 12 inches - pale brown gravelly silt loam
12 to 25 inches - light gray very gravelly loam
25 to 38 inches - light gray very gravelly sandy loam
38 to 60 inches - white extremely gravelly loamy sand
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 2.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.1
T factor: 2

ABLA/VAGL,VAGL Koffgo, humid

Setting
Slopes: 8 to 20 percent

Landscape position: north facing sideslopes

Vegetation Features
Potential natural vegetation: subalpine fir/blue huckleberry h.t., blue huckleberry phase
Present vegetation: The lodgepole pine/elk sedge c.t. and communities dominated by elk sedge are supported in recent clearcuts, scarified areas and plantations. The lodgepole pine/blue huckleberry c.t. and the Douglas-fir/blue huckleberry community are supported in leave strips.
Timber yield capability class: moderate

Soil Features
Name: Koffgo, humid
Classification: Loamy-skeletal, mixed Dystric Cryochrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
2 to 0 inches - forest litter
0 to 4 inches - grayish brown gravelly loam
4 to 27 inches - pale brown very gravelly sandy loam
27 to 41 inches - very pale brown extremely cobbly sandy loam
41 to 60 inches - fragmental
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 2.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.1
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 8 to 20 percent
Landscape position: south facing sideslopes
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: Communities dominated by elksedge are supported in recent clearcut and scarified areas. The lodgepole pine/elk sedge c.t. is supported in plantations. The lodgepole pine/pinegrass c.t. or Douglas-fir/pinegrass community are supported in leave strips.
Soils: Soils like Koffgo, warm that have dark colored surface layers greater than 10 inches thick. (Rhylow, warm soils)

Inclusion 2
Slope: 4 to 15 percent
Landscape position: swales and drainage bottoms
Potential natural vegetation: subalpine fir/blue huckleberry h.t., blue huckleberry phase
Present vegetation: Communities dominated by elksedge are supported in recent clearcut and scarified areas. The lodgepole pine/elk sedge c.t. is supported in plantations. The lodgepole pine/blue huckleberry c.t. or a Douglas-fir/blue huckleberry community are supported in leave strips.
Soils: Soils like Koffgo, humid that have dark colored surface layers greater than 10 inches thick.

Inclusion 3
Slope: 8 to 20 percent
Landscape position: south facing sideslopes
Potential natural vegetation: whitebark pine/Ross' sedge h.t., lodgepole pine phase
Present vegetation: Depauperate communities dominated by Ross' sedge, elk sedge or weedlike forbs are supported in recent clearcut and scarified areas. The lodgepole pine/ Ross'sedge c.t. is supported in leave strips.
Soils: Soils that are 15 to 20 inches deep to substratum layers that have very to extremely gravelly sand or coarse sand textures. (Lasac, dry soils)

Inclusion 4
Slope: 20 to 40 percent
Landscape position: short, north facing sideslopes
Potential natural vegetation: subalpine fir/blue huckleberry h.t., blue huckleberry phase
Present vegetation: Communities dominated by elk sedge are supported in recent clearcut and scarified areas. The lodgepole pine/elk sedge c.t. is supported in plantations. The lodgepole pine/blue huckleberry c.t. or Douglas-fir/blue huckleberry community are supported in leave strips.
Soils: Koffgo, humid soils are represented.

Management and Limitations

- Revegetating cut and fill slopes is severely limited on this map unit because the soils are too rocky.
- Shallow excavations are severely limited on this map unit because the soils are too rocky.
- Blue huckleberry, supported on this map unit,

has been observed to decrease or die out as the tree canopy is opened. This response suggests that the ABLA/VAGL,VAGL Koffgo, humid ecological type in this map unit is at the dry end of the ABLA/VAGL,VAGL h.t.

1576 -- ABLA/Meadow Mosaic Fitzwil, high elevation

Rolling to hilly plateaus at upper timberline positions are commonly represented. This unit occupies a broad transition between forested, shrub steppe and alpine zones. Mosaics of communities in the present vegetation are common. Slopes are lightly dissected by shallow drainageways with intermittent stream channels.

Map Unit Setting
Subsection: Centennial Mountains
Position on the landscape: plateaus
Elevations: 7100 to 9400 feet
Average annual precipitation: 28 inches
Average annual air temperature: 33 degrees F.
Geology: volcanic

Map Unit Composition
80 percent - ABLA/Meadow Mosaic Fitzwil, high elevation ecological type
20 percent - contrasting inclusions

ABLA/Meadow Mosaic Fitzwil, high elevation

Setting
Slopes: 4 to 25 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: subalpine fir/mountain meadow mosaic
Present vegetation: The present vegetation varies from uniform communities to fine mosaics of the following: subalpine fir/heartleaf arnica h.t., heartleaf arnica phase; subalpine fir/gooseberry currant h.t., whitebark pine phase; Douglas-fir/whortleberry h.t.; Douglas-fir/elk sedge community; lodgepole pine/elksedge c.t.; big sagebrush/California brome h.t.; big sagebrush/elk sedge h.t.; communities dominated by native or non-native grasses and mesic forbs; whitebark pine/Idaho fescue h.t. and mountain big sagebrush/Idaho fescue h.t.
Timber yield capability class: low

Soil Features
Name: Fitzwil, high elevation
Classification: Loamy-skeletal, mixed Cryic Paleborolls
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
0 to 9 inches - dark grayish brown gravelly silt loam
9 to 14 inches - brown very gravelly silt loam
14 to 19 inches - very pale brown extremely gravelly loam
19 to 33 inches - yellowish brown extremely gravelly loam
33 to 60 inches - yellowish brown extremely cobbly loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 7.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.43
T factor: 3

Contrasting Inclusions

Inclusion 1
Slope: 4 to 25 percent
Landscape position: subtle ridges and margins of the plateau
Potential natural vegetation: subalpine fir/mountain meadow mosaic
Present vegetation: The present vegetation varies from uniform communities to mosaics of the following: Douglas-fir/heartleaf arnica h.t., heartleaf arnica phase and weedy milkvetch phase; big sagebrush/California brome h.t.; and mountain big sagebrush/Idaho fescue h.t. are commonly supported.
Soils: Loamy soils that have greater than 35 percent stones or boulders on the surface or throughout the profile and are 10 to 40 inches deep to hard bedrock.

Inclusion 2
Slope: 4 to 25 percent
Landscape position: all positions
Potential natural vegetation: whitebark pine/Ross' sedge h.t., Ross' sedge phase

Present vegetation: The whitebark pine/Ross' sedge h.t., Ross' sedge phase is commonly supported.
Soils: Soils that are 10 to 20 inches deep to substratum layers having very gravelly loamy sand or coarse sand textures.

Inclusion 3
Slope: 25 to 50 percent
Landscape position: north facing sideslopes of drainageways
Potential natural vegetation: subalpine fir/snow prickly currant h.t., whitebark pine phase
Present vegetation: The subalpine fir/gooseberry currant h.t., whitebark pine phase is commonly supported.
Soils: Soils like Fitzwil, high elevation that have dark colored surface layers less than 10 inches thick.

Management and Limitations

- The potential for runoff from rain events or snowmelt is high on this unit. Evidence of overland and concentrated flows are common. The soils have reduced infiltration rates due to strong, coarse structure and hydrophobic conditions in the surface layers.

ABLA/Meadow Mosaic Fitzwil, high elevation

- ABLA/Meadow Mosaic Fitzwil, high elevation ecological type occupies positions that are transitional between forested, shrub steppe, and alpine zones. The supported vegetation may shift through the various communities listed in response to long term fluctuations in precipitation and temperature, fire history, or recent management activities.
- Exposure to wind or solar radiation has a strong correlation with droughtiness on the ABLA/Meadow Mosaic Fitzwil, high elevation ecological type. Removal of large portions of the timber canopy may increase droughtiness and shift the supported vegetation towards shrub steppe communities.
- Establishing tree seedlings is severely limited in large openings of the timber canopy of the ABLA/Meadow Mosaic Fitzwil, high elevation ecological type. Large openings are droughty due to exposure to wind and solar radiation. The most harsh positions for tree seedling establishment include those areas occupied by grass dominated communities and along the western and northern margins of the plateaus. Surface winds are strongest in these areas.
- Off-road vehicle use and development of recreation sites are severely limited on the ABLA/Meadow Mosaic Fitzwil, high elevation ecological type because of short growing and reproductive seasons.
- Revegetating cut and fill slopes is severely limited on the ABLA/Meadow Mosaic Fitzwil, high elevation ecological type because of the short growing and reproductive seasons.

1580 -- ABLA/VAGL,VASC Nopla, till substratum

Glacial melt-water channels on remnant ground moraines in the forested zone are commonly represented. The channels occur in a parallel pattern. They have rolling sideslopes that are lightly dissected by shallow draws and low knolls.

Map Unit Setting
Subsection: Madison-Pitchstone Plateaus
Position on the landscape: ground moraines
Elevations: 6400 to 7000 feet
Average annual precipitation: 31 inches
Average annual air temperature: 37 degrees F.
Geology: Sacagawea Ridge Glaciation

Map Unit Composition
80 percent - ABLA/VAGL,VASC Nopla, till substratum ecological type
20 percent - contrasting inclusions

ABLA/VAGL,VASC Nopla, till substratum

Setting
Slopes: 4 to 15 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: Communities dominated by elk sedge or pinegrass are supported in recent clearcut and scarified areas. The lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t. and lodgepole pine/grouse whortleberry c.t. are supported in some areas.
Timber yield capability class: moderate

Soil Features

Name: Nopla, till substratum
Classification: Fine-loamy, mixed Cryic Paleborolls
Parent material: local alluvium derived from loess and mixed volcanic rocks
Typical profile:
2 to 0 inches - forest litter
0 to 10 inches - brown silt loam
10 to 31 inches - yellowish brown silt loam
31 to 42 inches - yellowish brown and pale brown gravelly loam
42 to 49 inches - light yellowish brown gravelly loam
49 to 57 inches - light yellowish brown gravelly sandy loam
57 to 70 inches - light yellowish brown gravelly loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 3.5 inches
Available water capacity, surface to 60 inches: about 7.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.32
T factor: 5

Contrasting Inclusions

Inclusion 1
Slope: 4 to 15 percent
Landscape position: all positions
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase Present vegetation: Communities dominated by elk sedge or pinegrass are supported in recent clearcut and scarified areas. The lodgepole pine/elk sedge or lodgepole pine/pinegrass c.t.s are supported in reforesting clearcuts and plantations.
Soils: Soils like Nopla, till substratum that have 35 to 70 percent pebbles or cobbles in the subsoil and substratum layers.

Inclusion 2
Slope: 4 to 35 percent
Landscape position: south facing sideslopes of knolls and drainageways
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: Communities dominated by elk sedge or pinegrass are commonly supported.
Soils: Soils that have very gravelly loam to extremely cobbly sandy loam textures in the subsoil and substratum layers. (Rhylow, warm soils)

Inclusion 3
Slope: 4 to 35 percent
Landscape position: north facing sideslopes of knolls and bottoms of draws and drainageways
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., grouse whortleberry phase
Present vegetation: Communities dominated by elk sedge or pinegrass are commonly supported.
Soils: Soils like Nopla, till subsratum that are more moist and cool.

Management and Limitations

ABLA/VAGL,VASC Nopla, till substratum

- Pond reservoir areas are severely limited on the Nopla, till substratum soils because of seepage in the substratum layers.
- Exposed subsurface layers of the Nopla, till substratum soils have a very high potential for soil erosion from water. Exposed conditions may occur on freshly cut or unsurfaced roads, barrow pits, cutbanks or other disturbed sites.

1585 -- ABLA/VASC,CARU Rhylow

Foothill and mountains in the forested zone are commonly represented. The slopes are strongly dissected in a parallel pattern by incised drainageways. These drainageways dominate the landscape. They have hilly sideslopes with 50 to 200 feet relief.

Map Unit Setting
Subsection: Madison-Pitchstone Plateaus
Position on the landscape: foothills and mountains
Elevations: 6600 to 7900 feet
Average annual precipitation: 30 inches
Average annual air temperature: 36 degrees F.
Geology: volcanic

Map Unit Composition
80 percent - ABLA/VASC,CARU Rhylow ecological type
25 percent - contrasting inclusions

ABLA/VASC,CARU Rhylow

Setting

Slopes: 15 to 35 percent
Landscape position: sideslopes

Vegetation Features

Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/grouse whortleberry c.t., lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t. and communities dominated by elk sedge or pinegrass are commonly supported.
Timber yield capability class: moderate

Soil Features

Name: Rhylow
Classification: Loamy-skeletal, mixed Typic Cryumbrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
1 to 0 inches - forest litter
0 to 14 inches - brown gravelly loam
14 to 32 inches - yellowish brown gravelly loam
32 to 50 inches - light yellowish brown extremely cobbly sandy loam
50 to 65 inches - pale brown extremely cobbly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 6.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.17
T factor: 4

Contrasting Inclusions

Inclusion 1

Slope: 15 to 45 percent
Landscape position: north facing sideslopes
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/grouse whortleberry c.t. or communities dominated by elk sedge are commonly supported.
Soils: Soils like Rhylow that are slightly cooler and have dark colored surface layers less than 10 inches thick.

Inclusion 2

Slope: 1 to 15 percent
Landscape position: bottom of drainageways
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/grouse whortleberry c.t. or communities dominated by elk sedge are commonly supported.
Soils: Soils like Rhylow that are slightly cooler and have gravelly loam to very gravelly sandy loam textures to depths of 60 inches or more.

Inclusion 3

Slope: 4 to 15 percent
Landscape position: south facing summits and ridges
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/grouse whortleberry or lodgepole pine/pinegrass c.t.s are commonly supported.
Soils: Rhylow soils are represented.

Inclusion 4

Slope: 4 to 20 percent
Landscape position: shoulders and ridges
Potential natural vegetation: subalpine fir/white spirea h.t.
Present vegetation: The lodgepole pine/white spirea c.t. is commonly supported.
Soils: Soils like Rhylow that are 20 to 40 inches deep over fragmental material.

Inclusion 5

Slope: 4 to 15 percent
Landscape position: north facing summits
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., grouse whortleberry or pinegrass phases
Present vegetation: The lodgepole pine/grouse whortleberry c.t. is commonly supported.
Soils: Soils like Rhylow that are slightly cooler and have silt loam or gravelly silt loam textures to depths of 40 inches or more. (Oleo soils)

Management and Limitations

- Developed recreation sites are severely limited on this map unit because of slope.

ABLA/VASC,CARU Rhylow

- Establishing tree seedlings is severely limited on the ABLA/VASC,CARU Rhylow ecological type due to plant competition. Pinegrass and white spirea increase in openings of the timber canopy. Elk sedge increases after scarification.

These species compete with the tree seedlings for available water.

- Establishing tree seedlings in large openings of the timber canopy is severely limited on the ABLA/VASC,CARU Rhylow ecological type due to seedling mortality. Droughtiness is increased in large openings of the canopy because of increased winds.
- Pond reservoir areas are severely limited on the Rhylow soils because of seepage.

1592 -- PSME/SYAL Lag

South facing foothill and mountain sideslopes in the forested zone are commonly represented. The slopes are strongly dissected in a parallel pattern by incised drainageways. These drainageways dominate the landscape. They have steep, complex sideslopes that are lightly dissected by shallow draws and low spur ridges. Relief is commonly 50 to 200 feet.

Map Unit Setting
Subsection: Island Park
Position on the landscape: foothills and mountains
Elevations: 5700 to 7000 feet
Average annual precipitation: 23 inches
Average annual air temperature: 39 degrees F.
Geology: volcanic

Map Unit Composition
75 percent - PSME/SYAL Lag ecological type
25 percent - contrasting inclusions

PSME/SYAL Lag

Setting
Slopes: 25 to 50 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The Douglas-fir/common snowberry h.t.; quaking aspen-Douglas-fir/Saskatoon serviceberry c.t.; quaking aspen-Douglas-fir/whortleleaf snowberry c.t.; quaking aspen/whortleleaf snowberry/pinegrass c.t.; quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/pinegrass c.t.; quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/Fendlers's meadowrue c.t.; quaking aspen/Saskatoon serviceberry/brackenfern c.t.; and communities dominated by snowbrush ceanothus are commonly supported.
Timber yield capability class: moderate

Soil Features
Name: Lag
Classification: Loamy-skeletal, mixed Typic Cryoborolls
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
1 to 0 inches - forest litter
0 to 7 inches - very dark gray very gravelly loam
7 to 15 inches - very dark grayish brown extremely cobbly sandy loam
15 to 28 inches - pale brown extremely cobbly loam
28 to 60 inches - pale brown extremely cobbly loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 in.
Available water capacity, surface to 60 inches: about 4.5 in.
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.15
T factor: 3

Contrasting Inclusions

Inclusion 1
Slope: 4 to 25 percent
Landscape position: bottom of drainageways
Potential Natural Vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/pinegrass c.t. and communities dominated by native and non-native grasses are commonly supported.
Soils: Soils like Lag that have less than 35 percent rock fragments in the surface and subsoil layers.

Inclusion 2
Slope: 4 to 25 percent
Landscape position: south facing shoulders and spur ridges
Potential Natural Vegetation: Douglas-fir/white

spirea h.t., pinegrass phase
Present vegetation: The Douglas-fir/white spirea h.t., pinegrass phase are commonly supported.
Soils: Soils like Lag, dry that are 20 to 60 inches deep to bedrock.

Inclusion 3
Slope: 15 to 50 percent
Landscape position: north facing sideslopes of spur ridges
Potential Natural Vegetation: Douglas-fir/Rocky Mountain maple h.t.
Present vegetation: The Douglas-fir/Rocky Mountain maple h.t. is commonly supported.
Soils: Soils like Lag that are more moist.

Inclusion 4
Slope: 15 to 50 percent
Landscape position: narrow south facing sideslopes of spur ridges
Potential Natural Vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of the Douglas-fir/wortleleaf snowberry h.t. and the mountain big sagebrush/whortleleaf snowberry/Idaho fescue c.t is commonly supported. Communities dominated by mountain big sagebrush, wortleleaf snowberry, or snowbrush ceanothus and California brome are represented. Widely dispersed seedling through medium sized trees of Douglas-fir or lodgepole pine occur in some areas of the shrub dominated communities.
Soils: Soils like Lag that are more dry and warm and have dark colored surface layers greater than 16 inches thick.

Inclusion 5
Slope: 30 to 50 percent
Landscape position: north facing sideslopes
Potential Natural Vegetation: subalpine fir/blue huckleberry h.t., blue huckleberry phase
Present vegetation: The Douglas-fir/blue huckleberry community is commonly supported.
Soils: Soils like Lag that are more moist and have dark colored surface layers less than 10 inches thick. (Koffgo, humid soils)

Management and Limitations

- Revegetating cut and fill slopes is severely limited on this map unit because of the slope and the soils are too rocky.

PSME/SYAL Lag

- Establishing tree seedlings is severely limited on the PSME/SYAL Lag ecological type due to plant competition. The surface layers of the soil are medium textured and have a high available water capacity.
- Shallow excavations are severely limited on the Lag soils because of the slope and the soils are too rocky.

1594 -- ABLA/VAGL,VAGL Koffgo, humid

North facing foothill and mountain sideslopes in the forested zone are commonly represented. The sideslopes are lightly to moderately dissected by low spur ridges and shallow draws. Larger drainageways or canyons that extend into the foothills and mountains are common in some areas.

Map Unit Setting
Subsection: Island Park
Position on the landscape: foothills and mountains
Elevations: 6200 to 7200 feet
Average annual precipitation: 30 inches
Average annual air temperature: 36 degrees F.
Geology: volcanic

Map Unit Composition
85 percent - ABLA/VAGL,VAGL Koffgo, humid ecological type
15 percent - contrasting inclusions

ABLA/VAGL,VAGL Koffgo, humid

Setting
Slopes: 30 to 60 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: subalpine fir/blue huckleberry h.t., blue huckleberry phase
Present vegetation: The lodgepole pine/blue huckleberry c.t.; Douglas-fir/blue huckleberry community and subalpine fir/blue huckleberry h.t., blue huckleberry phase are supported in lightly disturbed areas. Communities dominated by elk sedge or snowbrush ceanothus are supported in recent clearcut and scarified areas.

Timber yield capability class: moderate

Soil Features
Name: Koffgo, humid
Classification: Loamy-skeletal, mixed Dystric Cryochrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
2 to 0 inches - forest litter
0 to 4 inches - grayish brown gravelly loam
4 to 27 inches - pale brown very gravelly sandy loam
27 to 41 inches - very pale brown extremely cobbly sandy loam
41 to 60 inches - fragmental
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 2.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.1
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 35 to 60 percent
Landscape position: south facing sideslopes of spur ridges
Potential natural vegetation: Douglas-fir/common snowberry h.t.
Present vegetation: The Douglas-fir/common snowberry h.t. and communities dominated by snowbrush ceanothus and California brome are commonly supported.
Soils: Soils like Koffgo, humid that have dark colored surface layers greater than 10 inches thick and a neutral reaction (pH) throughout the profile. (Lag soils)

Inclusion 2
Slope: 35 to 65 percent
Landscape position: shoulders and upper sideslopes
Potential natural vegetation: subalpine fir/Rocky Mountain maple h.t.
Present vegetation: The quaking aspen/Scouler's willow c.t. and lodgepole pine/Rocky Mountain maple community are commonly supported.
Soils: Soils like Koffgo, humid that are slightly more moist.

Inclusion 3
Slope: 15 to 30 percent
Landscape position: footslopes
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/blue huckleberry c.t. is commonly supported.
Soils: Soils that have silt loam or loam textures to depths of 40 inches or more.

Inclusion 4
Slope: 20 to 60 percent
Landscape position: south facing sideslopes of spur ridges
Potential natural vegetation: Douglas-fir/white spirea h.t., pinegrass phase
Present vegetation: The lodgepole pine/white spirea c.t. is commonly supported.
Soils: Soils like Koffgo, humid that are 20 to 40 inches deep over bedrock or fragmental material.
Comments: This inclusion is common at the lower precipitation range of the map unit. It occurs along the southern portion of the Island Park Caldera rim from Free Use Canyon through Anderson Mill Canyon and along the northwestern portion of Bishop Mountain.

Management and Limitations

- Revegetating with grass or shrubs is severely limited on this map unit because of slope.
- Off-road vehicle use and developed recreation sites are severely limited on this map unit because of slope.
- The use of heavy equipment for woodland management is severely limited on this map unit because of slope.
- Revegetating cut and fill slopes is severely limited on this map unit because of slope and the soils are too rocky.
- Shallow excavations are severely limited on this map unit because of slope and the soils are too rocky.
- Blue huckleberry, supported on this map unit in the Bishop Mountain area, has been observed to decrease or die out as the canopy is opened. This response suggests that the ABLA/VAGL,VAGL Koffgo, cool ecological type in this area is at the dry extreme of the ABLA/VAGL h.t.

1595 -- ABLA/VAGL,VASC Koffgo, cool

North facing foothill and mountain sideslopes in the forested zone are commonly represented. The topography is characterized by dipslopes that are strongly dissected in a parallel pattern by shallow drainageways. The drainageways have complex sideslopes that are lightly dissected by shallow draws and low spur ridges. Relief is commonly 50 to 200 feet relief.

Map Unit Setting
Subsection: Centennial Mountains, Island Park
Position on the landscape: foothills and mountains
Elevations: 6600 to 7400 feet
Average annual precipitation: 30 inches
Average annual air temperature: 36 degrees F.
Geology: volcanic

Map Unit Composition
85 percent - ABLA/VAGL,VASC Koffgo, cool ecological type
15 percent - contrasting inclusions

ABLA/VAGL,VASC Koffgo, cool

Setting
Slopes: 10 to 30 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/blue huckleberry c.t. is commonly supported.
Timber yield capability class: moderate

Soil Features
Name: Koffgo, cool
Classification: Loamy-skeletal, mixed Dystric Cryochrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
1 to 0 inches - forest litter
0 to 5 inches - brown gravelly loam
5 to 23 inches - pale brown very gravelly loam
23 to 50 inches - pale brown extremely stony sandy loam
50 to 60 inches - fragmental
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 2.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.1
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 4 to 20 percent
Landscape position: summits, ridges and south facing sideslopes
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The Douglas-fir/pinegrass community is commonly supported.
Soils: Soils like Koffgo, cool that have dark colored surface layers greater than 10 inches thick. (Fitzwil, warm soils)

Inclusion 2
Slope: 10 to 25 percent
Landscape position: bottom of drainageways
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., grouse whortleberry phase
Present vegetation: The subalpine fir/grouse whortleberry h.t., grouse whortleberry phase and lodgepole pine/grouse whortleberry c.t. are commonly supported.
Soils: Soils like Koffgo, cool that are colder.

Management and Limitations

- Revegetating cut and fill slopes is severely limited on this map unit because the soils are too rocky.
- Shallow excavations are severely limited on this map unit because of slope and the soils are too rocky.

ABLA/VAGL,VASC Koffgo, cool
- Revegetating with grass or shrubs is severely limited on the ABLA/VAGL,VASC Koffgo, cool ecological type because of slope.
- The use of heavy equipment for woodland management is severely limited on the Koffgo, cool soils because of slope.
- Developing recreation sites is severely limited on the Koffgo, cool soils because of slope.
- Septic tank absorption fields are severely limited on Koffgo, cool soils because of slope.
- Pond reservoir areas and sewage lagoon containment ponds are severely limited on the Koffgo soils because of seepage and slope.
- Fencing is severely limited on the Koffgo, cool

soils because the soils are too gravelly or rocky.

1597 -- ABLA/SPBE2 Koffgo, dry

North facing foothill and mountain sideslopes in the forested zone are commonly represented. The sideslopes are lightly to moderately dissected by low spur ridges and shallow draws. Larger drainageways or canyons that extend into the foothills and mountains are common in some areas.

Map Unit Setting
Subsection: Centennial Mountains
Position on the landscape: foothills and mountains
Elevations: 6800 to 8400 feet
Average annual precipitation: 27 inches
Average annual air temperature: 34 degrees F.
Geology: volcanic

Map Unit Composition
80 percent - ABLA/SPBE2 Koffgo, dry ecological type
20 percent - contrasting inclusions

ABLA/SPBE2 Koffgo, dry

Setting
Slopes: 35 to 60 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: subalpine fir/white spirea h.t.
Present vegetation: The subalpine fir/white spirea h.t., a Douglas-fir/white spirea community and communities dominated by Douglas-fir with a depauperate understory are commonly supported.
Timber yield capability class: moderate

Soil Features
Name: Koffgo, dry
Classification: Loamy-skeletal, mixed Dystric Cryochrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
0 to 4 inches - dark grayish brown gravelly loam
4 to 18 inches - pale brown very gravelly loam
18 to 60 inches - pale brown extremely cobbly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2 inches
Available water capacity, surface to 60 inches: about 4 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.1
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 40 to 60 percent
Landscape position: all positions
Soils: Rubble land dominated by cobbles, stones or boulders.

Inclusion 2
Slope: 35 to 60 percent
Landscape position: south facing sideslopes of spur ridges
Potential natural vegetation: subalpine fir/pinegrass h.t., pinegrass phase
Present vegetation: The Douglas-fir/pinegrass communities are commonly supported.
Soils: Soils like Koffgo, dry that have dark colored surface layers greater than 10 inches thick. (Rhylow, warm soils)

Inclusion 3
Slope: 45 to 70 percent
Landscape position: strong south facing sideslopes
Potential natural vegetation: Douglas-fir/Oregongrape h.t., whortleleaf snowberry phase
Present vegetation: The Douglas-fir/low Oregongrape h.t., whortleleaf snowberry phase is commonly supported.
Soils: Soils like Koffgo, dry that have neutral reaction (pH) throughout the profile.

Inclusion 4
Slope: 35 to 60 percent
Landscape position: all positions
Potential natural vegetation: whitebark pine/Ross' sedge h.t., lodgepole pine phase
Present vegetation: The lodgepole pine/Ross' sedge c.t. is commonly supported.
Soils: Soils that are 15 to 20 inches deep to substratum layers that have very to extremely gravelly sand or coarse sand textures. (Lasac,

dry soils)

Management and Limitations

- Revegetating with grass or shrubs is severely limited on this map unit because of slope.
- Off-road vehicle use and developed recreation sites are severely limited on this map unit because of slope.
- The use of heavy equipment for woodland management is severely limited on this map unit because of slope.
- Revegetating cut and fill slopes is severely limited on this map unit because of slope and the soils are too rocky.
- Shallow excavations are severely limited on this
map unit because of slope and the soils are too rocky.

ABLA/SPBE2 Koffgo, dry

- Pond reservoir areas and sewage lagoon containment ponds are severely limited on the Koffgo, dry soils because of seepage and slope.

1700 -- ABLA/VASC,CARU Koffgo

Dissected tablelands in the forested zone are commonly represented. The topography is characterized by broad summits and incised drainageways. The summits have rolling slopes that are lightly dissected by draws. The incised drainageways moderately dissect the tablelands in a dendritic pattern. The drainageways have short, complex sideslopes with 50 to 150 feet relief and narrow, flat drainage bottoms.

Map Unit Setting
Subsection: Island Park
Position on the landscape: dissected tablelands
Elevations: 6300 to 6900 feet
Average annual precipitation: 30 inches
Average annual air temperature: 37 degrees F.
Geology: volcanic

Map Unit Composition
75 percent - ABLA/VASC,CARU Koffgo ecological type
25 percent - contrasting inclusions

ABLA/VASC,CARU Koffgo

Setting
Slopes: 4 to 15 percent
Landscape position: summits

Vegetation Features
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/grouse whortleberry c.t.; lodgepole pine/pinegrass c.t.; lodgepole pine/elk sedge c.t.; lodgepole pine/white spirea c.t. are supported on lightly disturbed areas. The lodgepole pine/pinegrass c.t. and lodgepole pine/elk sedge c.t. are supported in reforesting clearcuts. Communities dominated by elk sedge, pinegrass, other native or non-native grasses are supported in recent clearcut and scarified areas.
Timber yield capability class: moderate

Soil Features
Name: Koffgo
Classification: Loamy-skeletal, mixed Dystric Cryochrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
1 to 0 inches - forest litter
0 to 4 inches - grayish brown silt loam
4 to 18 inches - light grayish brown gravelly silt loam
18 to 50 inches - light gray extremely cobbly sandy loam
50 to 60 inches - white fragmental material
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 3 inches
Available water capacity, surface to 60 inches: about 4 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.28
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 2 to 4 percent
Landscape position: bottom of drainageways
Potential natural vegetation: lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., or lodgepole pine/grouse whortleberry c.t.
Present vegetation: The lodgepole

pine/pinegrass c.t. and communities dominated by lodgepole pine and non-native grasses are supported in reforesting clearcuts. Communities dominated by non-native grasses are supported in recent clearcut and scarified areas.
Soils: Soils that have a seasonal water table at depths of 6 to 30 inches and are 10 to 15 inches deep to substratum layers with a gravelly coarse sand texture.

Inclusion 2
Slope: 30 to 60 percent
Landscape position: sideslopes of incised drainageways
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t. and lodgepole pine/elk sedge c.t. are supported in reforesting clearcuts. Communities dominated by elk sedge, pinegrass or other native or non-native grasses are commonly supported in recent clearcuts.
Soils: Koffgo soils are represented.

Inclusion 3
Landscape position: south facing sideslopes
Rock outcrops occurring as surface level exposures to irregular monoliths.

Management and Limitations

- Shallow excavations are severely limited on this map unit because the soils are too rocky.

ABLA/VASC,CARU Koffgo

- Pond reservoir areas and sewage lagoon containment ponds are severely limited on the Koffgo soils because of seepage.
- Fencing is severely limited on the Koffgo soils because the soils are too gravelly or too rocky.

1720 -- ABLA/VAGL,VASC Flatstone - ABLA/VASC,CARU Fitzwil - ABLA/VASC,CARU Koffgo complex

Undulating to rolling summits of dissected tablelands in the forested zone are commonly represented. The slopes are lightly dissected in a dendritic pattern by shallow drainageways. Relief is less than 100 feet.

Map Unit Setting
Subsection: Island Park
Position on the landscape: dissected tablelands and caldera floors
Elevations: 5900 to 7000 feet
Average annual precipitation: 27 inches
Average annual air temperature: 38 degrees F.
Geology: volcanic

Map Unit Composition
40 percent - ABLA/VAGL,VASC Flatstone ecological type
30 percent - ABLA/VASC,CARU Fitzwil ecological type
20 percent - ABLA/VASC,CARU Koffgo ecological type
10 percent - contrasting inclusions

ABLA/VAGL,VASC Flatstone

Setting
Slopes: 4 to 15 percent
Landscape position: sideslopes

Vegetation Features
Potential natural vegetation: subalpine fir/blue huckleberry h.t., grouse whortleberry phase
Present vegetation: The lodgepole pine/pinegrass c.t., lodgepole pine/grouse whortleberry c.t., Douglas-fir/pinegrass community, or communites dominated by lodgepole pine and non-native grasses are commonly supported.
Timber yield capability class: moderate

Soil Features
Name: Flatstone
Classification: Loamy-skeletal, mixed Typic Paleboralfs
Parent material: local alluvium or colluvium derived from loess and rhyolitic tuff
Typical profile:
1 to 0 inches - forest litter
0 to 5 inches - grayish brown silt loam
5 to 13 inches - light gray gravelly silt loam
13 to 44 inches - light gray extremely stony silt loam
44 to 60 inches - pale brown cobbly clay loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches:

about 5.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.24
T factor: 3

ABLA/VASC,CARU Fitzwil

Setting
Slopes: 2 to 8 percent
Landscape position: swales

Vegetation Features
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t., lodgepole pine/grouse whortleberry c.t., lodgepole pine/blue huckleberry c.t., Douglas-fir/grousewhortleberry community, Douglas-fir/pinegrass community, Douglas-fir/blue huckleberry community, and communities dominated by pinegrass, elk sedge or non-native grasses are commonly supported.
Timber yield capability class: moderate

Soil Features
Name: Fitzwil
Classification: Loamy-skeletal, mixed Cryic Paleborolls
Parent material: local alluvium or colluvium derived from loess and rhyolitic tuff
Typical profile:
0 to 11 inches - grayish brown very gravelly loam
11 to 31 inches - light gray very gravelly sandy loam
31 to 48 inches - light yellowish brown very gravelly sandy clay loam
48 to 65 inches - light yellowish brown very gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 6 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.15
T factor: 3

ABLA/VASC,CARU Koffgo

Setting
Slopes: 2 to 8 percent
Landscape position: ridges

Vegetation Features
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t., lodgepole pine/grouse whortleberry c.t., Douglas-fir/pinegrass community, Douglas-fir/grouse whortleberry community and communities dominated by lodgepole pine and non-native grasses are commonly supported on lightly disturbed areas. Communities dominated by elk sedge, pinegrass, other native or non-native grasses are supported in recent clearcut and scarified areas.
Timber yield capability class: moderate

Soil Features
Name: Koffgo
Classification: Loamy-skeletal, mixed Dystric Cryochrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
1 to 0 inches - forest litter
0 to 4 inches - grayish brown silt loam
4 to 18 inches - light grayish brown gravelly silt loam
18 to 50 inches - light gray extremely cobbly sandy loam
50 to 60 inches - white fragmental material
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 3 inches
Available water capacity, surface to 60 inches: about 4 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.28
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 4 to 15 percent
Landscape position: summits, footslopes and swales
Potential natural vegetation: lodgepole pine/grouse whortleberry c.t.
Present vegetation: The lodgepole pine/pinegrass c.t., lodgepole

pine/grouse whortleberry c.t. and communities dominated by lodgepole pine and non-native grasses are commonly supported.
Soils: Soils like Flatstone that have less than 35 percent rock fragments in the surface and subsoil layers. (Islandpark soils)

Inclusion 2
Slope: 2 to 4 percent
Landscape position: bottom of drainageways
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: Communities dominated by pinegrass, elk sedge, or non-native grasses are commonly supported.
Soils: Soils that have dark colored surface layers greater than 10 inches thick and gravelly loam to very gravelly sandy loam textures throughout the profile. (Rhylow)

Inclusion 3
Slope: 2 to 8 percent
Landscape position: ridges
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t. or communities dominated by lodgepole pine and non-native grasses are commonly supported.
Soils: Soils like Koffgo that are 20 to 40 inches deep over fragmental material.

Management and Limitations

- Revegetating cut and fill slopes is severely limited on the ABLA/VASC/CARU Koffgo ecological type because the soils are too rocky.
- Shallow excavations are severely limited on the Koffgo soils because the soils are too rocky.

ABLA/VAGL,VASC Flatstone
- Establishing tree seedlings is severely limited on the ABLA/VAGL,VASC Flatstone ecological type due to plant competition. The surface layers of the soil have a high available water capacity. Following clearcutting, pinegrass increases without scarification and elksedge increases with scarification. Both species compete with the tree seedlings.

ABLA/VASC,CARU Fitzwil
- Establishing tree seedlings is severely limited on the ABLA/VASC,CARU Fitzwil ecological type due to plant competition. Pinegrass and white spirea increase in openings of the timber canopy. Elksedge increases after scarification. These species compete with the tree seedlings for available water.
- Unsurfaced roads are moderately limited on the Fitzwil soils because the subsoil layers have slow percolation. Mudholes and puddles commonly develop in depressions on unsurfaced roads during snowmelt periods and after rain events.
- Pond reservoir areas are severely limited on the Fitzwil soils because of seepage in the substratum layers.

ABLA/VASC,CARU Koffgo
- Pond reservoir areas and sewage lagoon containment ponds are severely limited on the Koffgo soils because of seepage.
- Fencing is severely limited on the Koffgo soils because the soils are too gravelly or too rocky.

1730 -- ABLA/VASC,CARU Koffgo - PICO Perfa association

Dissected tablelands in the forested zone are commonly represented. The topography is characterized by broad summits and incised drainageways. The summits have rolling to hilly slopes that are moderately dissected by draws. The incised drainageways moderately dissect the tablelands in a parallel pattern. The drainageways have broad, flat bottoms and short, complex sideslopes with 50 to 150 feet relief. Seasonal water tables are common in the drainage bottoms.

Map Unit Setting
Subsection: Centennial Mountains, Island Park
Position on the landscape: dissected tablelands
Elevations: 6300 to 6500 feet
Average annual precipitation: 30 inches
Average annual air temperature: 37 degrees F.
Geology: volcanic

Map Unit Composition
45 percent - ABLA/VASC,CARU Koffgo ecological type
40 percent - PICO Perfa ecological type
15 percent - contrasting inclusions

ABLA/VASC,CARU Koffgo

Setting
Slopes: 2 to 30 percent
Landscape position: sideslopes and summits

Vegetation Features
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t., lodgepole pine/grouse whortleberry c.t., and lodgepole pine/elk sedge c.t. are commonly supported in lightly disturbed areas. Communities dominated by elk sedge, pinegrass, other native grasses or non-native grasses are supported in recent clearcut and scarified areas.
Timber yield capability class: moderate

Soil Features
Name: Koffgo
Classification: Loamy-skeletal, mixed Dystric Cryochrepts
Parent material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Typical profile:
1 to 0 inches - forest litter
0 to 4 inches - grayish brown silt loam
4 to 18 inches - light grayish brown gravelly silt loam
18 to 50 inches - light gray extremely cobbly sandy loam
50 to 60 inches - white fragmental material
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 3 inches
Available water capacity, surface to 60 inches: about 4 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.28
T factor: 2

PICO Perfa

Setting
Slopes: 2 to 4 percent
Landscape position: drainage bottoms

Vegetation Features
Potential natural vegetation: lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., or lodgepole pine/grouse whortleberry c.t.
Present vegetation: The lodgepole pine/pinegrass c.t. is supported on lightly disturbed areas. Communities dominated by non-native grasses are supported in recent clearcut and scarified areas.
Timber yield capability class: low to moderate

Soil Features
Name: Perfa
Classification: Sandy, mixed Oxyaquic Cryochrepts
Parent material: mixed alluvium
Typical profile:
1 to 0 inches - forest litter
0 to 3 inches - dark grayish brown sandy loam
3 to 11 inches - pale brown sandy loam
11 to 62 inches - variegated gravelly coarse sand
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 1.9 inches
Available water capacity, surface to 60 inches: about 4.3 inches
Drainage class: moderately well
Water table: 6 to 36 inches
Flooding hazard: none
Kw factor: 0.28
T factor: 2

Contrasting Inclusions

Inclusion 1
Slope: 4 to 15 percent
Landscape position: summits
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/pinegrass c.t. is supported on lightly disturbed areas. The lodgepole pine/elk sedge and lodgepole pine/pinegrass c.t.s. are supported in plantations and regenerating clearcuts.
Soils: Soils like Koffgo that have less than 35 percent rock fragments throughout the profile.

Inclusion 2
Slope: 30 to 60 percent
Landscape position: north facing sideslopes
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/grouse whortleberry c.t., lodgepole pine/pinegrass c.t., and lodgepole pine/elk sedge c.t. are supported in reforesting clearcuts. Communities dominated by elk sedge, pinegrass or non-native grasses are supported in recent clearcuts.
Soils: Koffgo soils are represented.

Inclusion 3

Slope: 30 to 60 percent
Landscape position: south facing sideslopes
Soils: Rock outcrops occurring as surface level exposures to irregular monoliths.

Management and Limitations

ABLA/VASC,CARU Koffgo

- Pond reservoir areas and sewage lagoon containment ponds are severely limited on the Koffgo soils because of seepage.
- Septic tank absorption fields are severely limited on Koffgo soils because of slope and the soils are a poor filter.
- Revegetating cut and fill slopes is severely limited on the ABLA/VASC/CARU Koffgo ecological type because the soils are too rocky.
- Shallow excavations are severely limited on the Koffgo soils because the soils are too rocky.
- Fencing is severely limited on the Koffgo soils because the soils are too gravelly or too rocky.

PICO Perfa

- Present vegetation and depth to seasonal high water table on the PICO Perfa ecological type vary with each other and with the current vegetation on adjacent uplands.

When the timber canopies die or are removed on large areas of the PICO Perfa ecological type or on adjacent uplands, seasonal water tables rise in the Perfa soils. Established lodgepole pine in these communities may drown out. Establishing tree seedlings into the communities is limited due to plant competition resulting from the increased moisture.

When the timber canopies are established and actively growing on adjacent uplands, seasonal water tables lower in the Perfa soils. Reduced moisture and reduced plant competition allow establishment of tree seedlings.

When the timber canopies are near maturity on adjacent uplands, the Perfa soils may become droughty. Establishment of tree seedlings or revegetating with grass or shrubs may be limited during these periods because of droughtiness.

- Tree windthrow hazard is severe on the PICO Perfa ecological type because of wetness and the soils are too sandy.
- Septic tank absorption fields are severely limited on the Perfa soils because of wetness and the soils are a poor filter.
- Pond reservoir areas are severely limited on the Perfa soils because of seepage in the substratum layers.
- Sewage lagoon containment ponds, embankments, dikes and levees are severely limited on the Perfa soils because of seepage and wetness.
- Fencing is severely limited on the Perfa soils because of wetness and the soils are too sandy.
- Shallow excavations are severely limited on the Perfa soils because of wetness and the cutbanks collapse.
- Many other management activities and uses are severely limited on the Perfa soils because of seasonal wetness. These activities and uses include: use of heavy equipment for woodland or rangeland management, off-road vehicle use, paths and trails, developed recreation sites, unsurfaced roads, parking areas, and structures without basements.

1760 -- PSME/ARTRV Fourme

Alluvial fans and stream terraces adjacent to the forested zone are commonly represented. The unit occupies the moist end of the shrub steppe zone and is transitional to the forested zone. Slopes are undulating or concave. Seasonal water tables are at depths greater than 6 feet.

Map Unit Setting

Subsection: Centennial Mountains, Island Park
Position on the landscape: alluvial fans and stream terraces
Elevations: 6300 to 7000 feet
Average annual precipitation: 24 inches
Average annual air temperature: 37 degrees F.
Geology: mixed alluvium

Map Unit Composition

95 percent - PSME/ARTRV Fourme ecological type
15 percent - contrasting inclusions

PSME/ARTRV Fourme

Setting

Slopes: 0 to 4 percent
Landscape position: all positions

Vegetation Features

Potential natural vegetation: Douglas-fir/whortleleaf snowberry habitat type and mountain big sagebrush/Idaho fescue habitat type ecotone.
Present vegetation: A mosaic of the Douglas-fir/whortleleaf snowberry and the mountain big sagebrush/Idaho fescue h.t.s is commonly supported. Communities

dominated by mountain big sagebrush or whortleleaf snowberry and California brome are present. Widely dispersed, seedling through mature sized trees of Douglas-fir occur in some areas of shrub dominated communities.
Timber yield capability class: none

Soil Features
Name: Fourme
Classification: Loamy-skeletal, mixed Argic Cryoborolls
Parent material: mixed alluvium
Typical profile:
0 to 5 inches - brown loam
5 to 11 inches - dark brown gravelly loam
11 to 30 inches - light yellowish brown very gravelly sandy clay loam
30 to 60 inches - variegated extremely gravelly coarse sand

Depth class: very deep (greater than 60 inches)
Permeability: moderately slow
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 4.5 inches
Drainage class: well
Water table: none
Flooding hazard: none
Kw factor: 0.28
T factor: 2

Contrasting Inclusions
Inclusion 1
Slope: 0 to 8 percent
Landscape position: levees and upper sideslopes
Potential natural vegetation: Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: A mosaic of mountain big sagebrush/mountain snowberry/Idaho Fescue h.t., Douglas-fir/mountain snowberry h.t. and quaking aspen/mountain snowberry/pinegrass c.t. is commonly supported.
Soils: Soils like Fourme that are more moist and have dark colored surface layers greater than 16 inches thick.

Management and Limitations
PSME/ARTRV Fourme
- Fencing is severely limited on the Fourme soils because the soils are too gravelly.
- Pond reservoir areas are severely limited on the Fourme soils because of seepage.
- Shallow excavations are severely limited on the Fourme soils because the cutbanks collapse.
- Use as soil reconstruction material for drastically disturbed areas is severely limited on the Fourme soils because the soils are too sandy.

2000 -- DECE Paleboralfs, wet

Riparian areas in closed basins on a caldera floor are commonly represented in the forested zone. Seasonal ponding and watertables are common.

Map Unit Setting
Subsection: Island Park
Position on the landscape: caldera floor
Elevations: 5900 to 6800 feet
Average annual precipitation: 24 inches
Average annual air temperature: 38 degrees F.
Geology: volcanic

Map Unit Composition
95 percent - DECE Paleboralfs, wet ecological type
5 percent - contrasting inclusions

DECE Paleboralfs, wet
Setting
Slopes: 0 to 2 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: tufted hairgrass c.t.
Present vegetation: Communities dominated by riparian sedges and native grasses are commonly supported.
Timber yield capability class: none

Soil Features
Name: Paleboralfs, wet
Classification: Coarse-silty, mixed Oxyaquic Paleboralfs
Parent material: loess over residuum from basalt
Typical profile:
0 to 16 inches - dark grayish brown silt loam
16 to 44 inches - brown silt loam
44 to 60 inches - brown very cobbly silty clay
Depth class: very deep (greater than 60 inches)
Permeability: slow
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches:

about 11 inches
Drainage class: somewhat poorly
Water table: 0 to 18 inches
Flooding hazard: frequent
Kw factor: 0.32
T factor: 5

Contrasting Inclusions

Inclusion 1
Slope: 0 to 2 percent
Landscape position: lowest swales and adjacent to ponds
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Diverse riparian communities dominated by willows or sedges are commonly supported. Booth's willow, Geyer's willow and beaked sedge have been identified. Other dominant species are also represented.
Soils: Soils like Paleboralfs, wet that are poorly drained.

Inclusion 2
Slope: 0 to 4 percent
Landscape position: pressure ridges
Potential natural vegetation: quaking aspen-lodgepole pine/whortleleaf snowberry c.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: Communities dominated by mountain big sagebrush or antelope bitterbrush and California brome, prairie Junegrass, timber oatgrass, other native or non-native grasses and weedlike forbs are commonly supported. Widely dispersed seedling or sapling sized trees of lodgepole pine occur in some areas.
Soils: Well drained soils that are 10 to 20 inches deep to bedrock. (Spliten soils)

Inclusion 3
Landscape position: sideslopes of pressure ridges
Potential natural vegetation: lodgepole pine/grouse whortleberry c.t.
Present vegetation: The lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., lodgepole pine/grouse whortleberry c.t and communities dominated by lodgepole pine and non-native grasses are supported in leave strips and plantations. Communities dominated by elk sedge, pinegrass and other native or non-native grasses are supported in recent clearcut and scarified areas.
Soils: Soils like the Paleboralf, wet that are well drained. (Islandpark soils)

Management and Limitations

- Present vegetation and depth to seasonal high water tables vary with each other and with the current vegetation on adjacent uplands in the dynamic riparian systems of this map unit.
- When the timber canopies die or are removed on large areas of the adjacent uplands, water tables rise, and ponded areas and riparian zones increase in size. In the riparian zone the current vegetation shifts toward communities dominated by riparian sedges. Established lodgepole pine may drown out in this map unit.
- When timber canopies are well established and actively growing on large areas of the adjacent uplands, water tables lower in this map unit. Ponded areas decrease in size and duration, riparian zones decrease in size and shift position and current vegetation shifts towards drier upland communities. Some areas may lose their riparian character. Reduced wetness and reduced plant competition in these drier communities allow the establishment of tree seedlings.

DECE Paleboralfs, wet
- Paths, trails, and shallow excavations are severely limited on the Paleboralfs, wet soils because of wetness.
- Developed recreation sites, sewage lagoons and containment ponds, and structures without basements are severely limited on the Paleboralfs, wet soils because of wetness and flooding.
- The potential for soil compaction is severe on the Paleboralfs, wet soils because of wetness.
- Unsurfaced roads and parking areas are severely limited on the Paleboralfs, wet soils because of wetness, flooding and shrink-swell.
- Septic tank absorption fields are severely limited on the Paleboralfs, wet soils because the soils have slow percolation, wetness and flooding.
- Off-road vehicle use and the use of heavy equipment for woodland management is severely limited on the Paleboralfs, wet soils because of wetness and the potential for soil compaction.

2020 -- Salix/Graminoid Chickreek - Salix/Graminoid Tepete complex

Stream terraces on outwash plains occurring in the forested zone are commonly represented. The terraces have very low gradients. They are commonly associated with Rosgen stream types C3 or C4. Stream flow regimes are perennial with little variation throughout the year. Stream width ranges from 5 to 150 feet. Beaver ponds are few to frequent on stream segments less than 50 feet in width. Seasonal ponding and a seasonal water table are common. Flooding is rare.

Map Unit Setting
Subsection: Island Park
Position on the landscape: outwash plains
Elevations: 6300 to 6600 feet
Average annual precipitation: 26 inches
Average annual air temperature: 37 degrees F.
Geology: mixed alluvium

Map Unit Composition
45 percent - Salix/Graminoid Chickreek ecological type
45 percent - Salix/Graminoid Tepete ecological type
10 percent - contrasting inclusions

Salix/Graminoid Chickreek

Setting
Slopes: 0 to 1 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Communities dominated by various willows and riparian sedges are commonly supported.
Timber yield capability class: none

Soil Features
Name: Chickreek
Classification: Fine-silty over sandy or sandy-skeletal, mixed, nonacid Typic Cryaquents
Parent material: diatomaceous earth over alluvium derived from obsidian and rhyolite
Typical profile:
0 to 6 inches - very dark grayish brown mucky peat
6 to 31 inches - white silt loam
31 to 66 inches - variegated stratified gravelly sand through extremely gravelly sand
Depth class: very deep (greater than 60 inches)
Permeability: slow
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 8 inches
Drainage class: poorly
Water table: +12 to 18 inches
Flooding hazard: rare
Kw factor: 0.1
T factor: 2

Comments
The supported willows are commonly 2 to 4 feet high.

Salix/Graminoid Tepete

Setting
Slopes: 0 to 1 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Communities dominated by various willows and riprian sedges are commonly supported.
Timber yield capability class: none

Soil Features
Name: Tepete
Classification: Loamy, mixed Euic Terric Borohemists
Parent material: decomposed plant materials over mixed alluvium
Typical profile:
0 to 28 inches - very dark gray hemic material
28 to 40 inches - grayish brown fine sandy loam
40 to 70 inches - variegated stratified coarse sand and gravel
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 5.5 inches
Available water capacity, surface to 60 inches: about 10 inches
Drainage class: very poorly
Water table: +6 to 18 inches
Flooding hazard: rare
Kw factor: 0
T factor: 5

Comments
The supported willows are commonly 2 to 4 feet high.

Contrasting Inclusions

Inclusion 1
Slope: 0 to 2 percent
Landscape position: subtle gravel bars that are slightly higher in elevation
Potential natural vegetation: lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., or lodgepole pine/grouse whortleberry c.t.
Present vegetation: The lodgepole pine/pinegrass c.t. and communities dominated by lodgepole pine and non-native grasses are commonly supported.
Soils: Somewhat poorly drained soils that are 10 to 15 inches deep to substratum layers with a gravelly coarse sand texture. (Perfa soils)
Comments: Mature lodgepole pine is dead and standing, possibly due to a rise in water table. Younger, live lodgepole pine are present. Depth to water table in these areas is 6 to 12 inches lower than in the main components.

Management and Limitations

- This map unit has the potential for frequent floods of long duration during the peak snowmelt periods of April through June.

Salix/Graminoid Chickreek

- Pond reservoir areas are severely limited on the Chickreek soils because of seepage in the substratum layers.
- The potential for soil compaction is severe on the Salix/Graminoid ecological type because of wetness.
- The use of heavy equipment for rangeland or woodland management, off-road vehicle use, paths and trails are severely limited on the Chickreek soils because of seasonal wetness.
- Septic tank absorption fields are severely limited on the Chickreek soils because of wetness and the substratum layers are a poor filter.
- Shallow excavations are severely limited on the Chickreek soils because of wetness and the cutbanks collapse.
- Developed recreation sites and structures without basements are severely limited on the Chickreek soils because of wetness and flooding.
- Unsurfaced roads and parking areas are severely limited on the Chickcreek soils because of wetness and low strength.
- Embankments, dikes and levees are severely limited on the Chickreek soils because of wetness and seepage.

Salix/Graminoid Tepete

- Fencing, use of heavy equipment for woodland or rangeland management, and foot paths and trails are severely limited on the Tepete soils because of wetness.
- Off-road vehicle use is severely limited on the Tepete soils because of wetness and excessive humus.
- Developed recreation sites are severely limited on the Tepete soils because of wetness, excessive humus and flooding.
- Pond reservoir areas are severely limited on the Tepete soils because of seepage.
- Unsurfaced roads and parking areas are severely limited on the Tepete soils because of wetness and low strength.
- Shallow excavations are severely limited on the Tepete soils because of wetness and the cutbanks collapse.
- Structures without basements are severely limited on the Tepete soils because of wetness, flooding and the soil subsides.

2040 -- PICO Perfa - PICO Stamp, dry - ABLA/CACA4,CACA4 Bootjack association

Stream terraces on outwash plains in the forested zone are commonly represented. Three terrace levels are recognized. The depth to a seasonal water table and amount of fluctuation of the water table varies with terrace level. Both droughty forested communities and forested riparian communities are supported.

Map Unit Setting
Subsection: Island Park
Position on the landscape: outwash plains
Elevations: 6360 to 6460 feet
Average annual precipitation: 30 inches
Average annual air temperature: 37 degrees F.
Geology: mixed alluvium

Map Unit Composition
40 percent - PICO Perfa ecological type
25 percent - PICO Stamp, dry ecological type
20 percent - ABLA/CACA4,CACA4 Bootjack ecological type
15 percent - contrasting inclusions

PICO Perfa

Setting

Slopes: 0 to 4 percent
Landscape position: higher stream terraces

Vegetation Features
Potential natural vegetation: lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., or lodgepole pine/grouse whortleberry c.t.
Present vegetation: The lodgepole pine/pinegrass c.t. is supported on lightly or nondisturbed areas. Communities dominated by non-native grasses are supported in recent clearcut and scarified areas.
Timber yield capability class: low to moderate

Soil Features
Name: Perfa
Classification: Sandy, mixed Oxyaquic Cryochrepts
Parent material: mixed alluvium
Typical profile:
1 to 0 inches - forest litter
0 to 3 inches - dark grayish brown sandy loam
3 to 11 inches - pale brown sandy loam
11 to 62 inches - variegated gravelly coarse sand
Depth class: very deep (greater than 60 inches)
Permeability: moderately rapid
Available water capacity, surface to 20 inches: about 1.9 inches
Available water capacity, surface to 60 inches: about 4.3 inches
Drainage class: moderately well
Water table: 6 to 36 inches
Flooding hazard: none
Kw factor: 0.28
T factor: 2

PICO Stamp, dry

Setting
Slopes: 0 to 2 percent
Landscape position: middle stream terraces

Vegetation Features
Potential natural vegetation: lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., or lodgepole pine/grouse whortleberry c.t.
Present vegetation: The lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., and the lodgepole pine/grouse whortleberry c.t. are commonly supported.
Timber yield capability class: moderate

Soil Features
Name: Stamp, dry
Classification: Coarse-loamy, mixed Aquic Cryochrepts
Parent material: alluvium derived from diatomaceous earth materials over obsidian sands
Typical profile:
1 to 0 inches - forest litter
0 to 14 inches - light brownish gray silt loam
14 to 21 inches - very pale brown loam
21 to 60 inches - variegated gravelly coarse sand
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 3.5 inches
Available water capacity, surface to 60 inches: about 4.5 inches
Drainage class: somewhat poorly
Water table: 0 to 36 inches
Flooding hazard: frequent
Kw factor: 0.49
T factor: 2

ABLA/CACA4,CACA4 Bootjack

Setting
Slopes: 0 to 2 percent
Landscape position: lower stream terraces

Vegetation Features
Potential natural vegetation: subalpine fir/bluejoint h.t., bluejoint phase
Present vegetation: The lodgepole pine/bluejoint c.t. is commonly supported.
Timber yield capability class: low

Soil Features
Name: Bootjack
Classification: Fine-loamy over sandy or sandy skeletal, mixed Aeric Cryaquepts
Parent material: alluvium derived from diatomaceous earth materials with obsidian sands in lower profile
Typical profile:
2 to 0 inches - forest litter
0 to 7 inches - light gray silt loam
7 to 15 inches - white loam
15 to 60 inches - variegated stratified coarse sand and fine sand
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 3 inches
Available water capacity, surface to 60 inches:

about 4 inches
Drainage class: poorly
Water table: 0 to 18 inches
Flooding hazard: frequent
Kw factor: 0.49
T factor: 2

Comments
Lodgepole pine over ten feet in height were dead in all areas observed. It appears that the trees were drowned due to a recent rise in the water table.

Contrasting Inclusions

Inclusion 1
Slope: 0 to 2 percent
Landscape position: adjacent to perennial streams on the lowest stream terraces
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: Diverse riparian communities dominated by sedges or willows are commonly supported. Booth's willow, Geyer's willow and beaked sedge have been identified. Other dominant species are also represented.
Soils: Very poorly drained soils that have thick layers of peat on the surface. (Tepete and Chickreek soils)

Inclusion 2
Slope: 0 to 4 percent
Landscape position: lower stream terraces
Potential natural vegetation: subalpine fir/bluejoint h.t., bluejoint phase
Present vegetation: Communities dominated by oatgrass, and other native and non-native grasses are commonly supported.
Soils: Soils like Bootjack that are artifically drained.
Comments: This inclusion consists of the ABLA/CACA4,CACA4 Bootjack ecological type that has been artifically drained.

Inclusion 3
Slope: 0 to 2 percent
Landscape position: lower stream terrace and drainageways
Potential natural vegetation: tufted hairgrass c.t.
Present vegetation: The tuffed hairgrass c.t. is commonly supported.
Soils: Soils like Stamp, dry that have ponding for several weeks during the spring or early summer. (Stamp soils)

Inclusion 4
Slope: 2 to 8 percent
Landscape position: highest stream terraces
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: Communities dominated by mountain big sagebrush or gray low sagebrush and bluebunch wheatgrass, other native or non-native grasses or mesic forbs are commonly supported.
Soils: Soils like Perfa that are well drained. (Trude soils)

Management and Limitations

- Present vegetation and depth to seasonal high water tables vary with each other in the dynamic riparian systems of this map unit.

When the timber canopies die or are removed on large areas of adjacent uplands, water tables rise in this map unit. The current vegetation shifts toward communities dominated by bluejoint or beaked sedge. Established lodgepole pine in these communities may drown out.

When the timber canopies are well established and actively growing on large areas of adjacent uplands, water tables lower in this map unit. The current vegetation shifts toward drier upland communities. Reduced plant competition and reduced wetness allows establishment of tree seedlings in these drier communities.

- This map unit has the potential for frequent floods of long duration during the peak snowmelt periods of April through June.

PICO Perfa
- Tree windthrow hazard is severe on the Pico Perfa ecological type because of wetness and the soils are too sandy.
- Septic tank absorption fields are severely limited on the Perfa soils because of wetness and the soils are a poor filter.
- Pond reservoir areas are severely limited on the Perfa soils because of seepage in the substratum layers.
- Sewage lagoon containment ponds, embankments, dikes and levees are severely limited on the Perfa soils because of seepage and wetness.
- Embankments, dikes and levees are severely limited on the Stamp, dry soils because of wetness and seepage.
- Shallow excavations are severely limited on the Perfa soils because of wetness and the cutbanks collapse.
- Fencing is severely limited on the Perfa soils because of wetness and the soils are too sandy.

• Many other management activities and uses are severely limited on the Perfa soils because of seasonal wetness. These activities and uses include: use of heavy equipment for woodland or rangeland management, off-road vehicle use, paths and trails, developed recreation sites, unsurfaced roads, parking areas, and structures without basements.

PICO Stamp, dry

• Tree windthrow hazard is severe on the PICO Stamp, dry ecological type because of wetness.
• Establishing tree seedlings is severely limited on the PICO Stamp, dry ecological type due to plant competition and seasonal wetness.
• Pond reservoir areas are severely limited on the Stamp, dry soils because of seepage in the substratum layers.
• Septic tank absorption fields are severely limited on the Stamp, dry soils because of wetness and flooding and the substratum layers are a poor filter.
• Shallow excavations are severely limited on the Stamp, dry soils because of wetness and the cutbanks collapse.
• The potential for soil compaction is severe on the PICO Stamp, dry ecological type because of wetness and the surface and subsoil layers have low strength.
• The use of heavy equipment for woodland management, off-road vehicle use, paths and trails are severely limited on the Stamp, dry soils because of seasonal wetness and the potential for soil compaction.
• Livestock grazing or trailing is limited during the spring and summer on the PICO Stamp dry ecological type because of wetness and the potential for soil compaction.
• Fencing is severely limited on the Stamp, dry soils because of seasonal wetness and the substratum layers are too sandy.
• Developed recreation sites are severely limited on the Stamp, dry soils because of seasonal wetness and flooding.
• Unsurfaced roads and parking areas are severely limited on the Stamp, dry soils because of wetness, flooding and low strength.

ABLA/CACA4,CACA4 Bootjack

• Tree windthrow hazard is severe on the ABLA/CACA4,CACA4 Bootjack ecological type because of wetness.
• Establishing tree seedlings is severely limited on the ABLA/CACA4,CACA4 Bootjack ecological type due to plant competition and seasonal wetness.
• Septic tank absorption fields are severely limited on the Bootjack soils because of wetness and flooding and the substratum layers are a poor filter.
• Pond reservoir areas are severely limited on the Bootjack soils because of seepage in the substratum layers.
• Shallow excavations are severely limited on the Bootjack soils because of wetness and the cutbanks collapse.
• Embankments, dikes and levees are severely limited on the Bootjack soils because of wetness and seepage.
• The potential for soil compaction is severe on the ABLA/CACA4,CACA4 Bootjack ecological type because of wetness and the surface and subsoil layers have low strength.
• The use of heavy equipment for woodland or rangeland management, off-road vehicle use and paths and trails are severely limited on the Bootjack soils because of seasonal wetness and the potential for soil compaction.
• Livestock grazing or trailing is limited during the spring and summer on the ABLA/CACA4,CACA4 Bootjack ecological type because of wetness and the potential for soil compaction.
• Unsurfaced roads and parking areas are severely limited on the Bootjack soils because of wetness, flooding and low strength.
• Fencing is severely limited on the Bootjack soils because of seasonal wetness and the substratum layers are too sandy.
• Developed recreation sites are severely limited on the Bootjack soils because of seasonal wetness and flooding.

2070 -- DECE Stamp

Stream terraces and outwash plains in the forested zone are commonly represented. Slopes are nearly level to undulating. A seasonal water table is common.

Map Unit Setting

Subsection: Island Park
Position on the landscape: outwash plains and stream terraces
Elevations: 6300 to 6700 feet
Average annual precipitation: 29 inches
Average annual air temperature: 37 degrees F.
Geology: mixed alluvium

Map Unit Composition
90 percent - DECE Stamp ecological type
10 percent - contrasting inclusions

DECE Stamp

Setting
Slopes: 0 to 4 percent
Landscape position: outwash plains and stream terraces

Vegetation Features
Potential natural vegetation: tufted hairgrass c.t.
Present vegetation: The tufted hairgrass c.t. or communities dominated by slender wheatgrass, sedges or other native or non-native grasses and forbs are commonly supported.
Timber yield capability class: none

Soil Features
Name: Stamp
Classification: Coarse-loamy, mixed Aquic Cryochrepts
Parent material: mixed alluvium
Typical profile:
0 to 5 inches - light brownish gray loam
5 to 20 inches - light brownish gray loam
20 to 38 inches - light brownish gray coarse sandy loam
38 to 60 inches - variegated gravelly coarse sand
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 2.5 inches
Available water capacity, surface to 60 inches: about 5 inches
Drainage class: somewhat poorly
Water table: +12 to 18 inches
Flooding hazard: rare
Kw factor: 0.32
T factor: 4

Contrasting Inclusions

Inclusion 1
Slope: 0 to 4 percent
Landscape position: highest stream terraces
Potential natural vegetation: mountain big sagebrush/Idaho fescue h.t.
Present vegetation: Communities dominated by mountain big sagebrush or gray low sagebrush and bluebunch wheatgrass, other native or non-native grasses or mesic forbs are commonly supported.
Soils: Well drained soils that are 17 to 25 inches deep to substratum layers of stratifed sand and gravel. (Trude soils)

Inclusion 2
Slope: 0 to 4 percent
Landscape position: slightly higher stream terraces
Potential natural vegetation: lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., or lodgepole pine/grouse whortleberry c.t.
Present vegetation: The lodgepole pine/pinegrass c.t. and communities dominated by lodgepole pine and non-native grasses are commonly supported.
Soils: Well drained soils that are 10 to 15 inches deep to substratum layers with a gravelly coarse sand texture. (Perfa soils)

Management and Limitations

DECE Stamp
- Pond reservoir areas are severely limited on the Stamp soils because of seepage.
- Septic tank absorption fields are severely limited on the Stamp soils because of wetness and the soils are a poor filter.
- Many other management activities and uses are severely limited on the Stamp soils because of the depth to a seasonal high water table. These activities and uses include: fencing, use of heavy equipment for woodland or rangeland management, off-road vehicle use, foot paths, trails, unsurfaced roads and parking areas.
- Sewage lagoon containment ponds and embankments, dikes and levees are severely limited on the Stamp soils because of seepage and wetness.
- Developed recreation sites and structures without basements are severely limited on the Stamp soils because of wetness and flooding.
- Shallow excavations are severely limited on the Stamp soils because of wetness and the cutbanks collapse.

2606 -- Salix/Graminoid Cryaquolls and Salix/Graminoid Cryaquolls, poorly drained

Floodplains in and adjacent to the forested zone are commonly represented. The topography is

characterized by flat bottom, very low to moderate gradient (2 to 6 percent), and narrow to broad width (40 to 600 feet) floodplains in incised canyons and foothill valleys. Rosgen stream types C3 and C4 are commonly represented. Commonly the floodplain crosses the entire valley bottom, stream meanders are confined, flow regimes are perennial or intermittent, and stream width is 1 to 30 feet. Seasonal variation in stream flow in dominated by snowmelt runoff. Beaver ponds are few to frequent. Channel incisement and beaver activity strongy influence the hydrology of the system. One or both of the components may occur in any delineation of this unit.

Map Unit Setting
Subsection: Centennial Mountains, Island Park, Madison-Pitchstone Plateaus, Lemhi-Medicine Lodge
Position on the landscape: floodplains
Elevations: 5600 to 7800 feet
Average annual precipitation: 23 inches
Average annual air temperature: 37 degrees F.
Geology: mixed alluvium

Salix/Graminoid Cryaquolls

Setting
Slopes: 0 to 6 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: The Booth's willow/fowl bluegrass c.t., Booth's willow/starry false Solomon's seal c.t., Geyer willow/fowl bluegrass c.t., shrubby cinquefoil/Kentucky bluegrass community, and communities dominated by timothy, Kentucky bluegrass, Baltic rush, smallwing sedge, Columbia needlegrass, slender wheatgrass, other native or non-native grasses, mesic forbs or weedlike forbs are supported.
Timber yield capability class: none

Soil Features
Name: Cryaquolls
Classification: Cryaquolls
Parent material: mixed alluvium
Typical profile:
0 to 5 inches - very dark grayish brown silt loam
5 to 24 inches - grayish brown silt loam
24 to 34 inches - light gray sandy loam
34 to 60 inches - variegated extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 7.5 inches
Drainage class: somewhat poorly
Water table: +6 to 18 inches
Flooding hazard: frequent
Kw factor: 0.28
T factor: 4

Comments
The percent of map units represented by this component varies with the stream flow regime and beaver activity. It is the dominant ecological type on intermittent or perennial stream segments with infrequent beaver dams.

Salix/Graminoid Cryaquolls, poorly drained

Setting
Slopes: 0 to 2 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: The Booth's willow/bluejoint c.t., Booth's willow/beaked sedge c.t., Geyer willow/bluejoint c.t., Geyer willow/beaked sedge c.t. and communities dominated by bluejoint, beaked sedge or other riparian sedges are supported.
Timber yield capability class: none

Soil Features
Name: Cryaquolls, poorly drained
Classification: Cryaquolls
Parent material: mixed alluvium
Typical profile:
0 to 5 inches - very dark grayish brown silt loam
5 to 24 inches - grayish brown silt loam
24 to 34 inches - light gray sandy loam
34 to 60 inches - variegated extremely gravelly sandy loam
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 7.5 inches

Drainage class: poorly
Water table: +6 to 6 inches
Flooding hazard: frequent
Kw factor: 0.28
T factor: 4

Comments
The percent of map unit represented by this component varies with the stream flow regime and beaver activity. It is the dominant ecological type on perennial stream segments with frequent beaver ponds and is absent on intermittent stream segments.

Contrasting Inclusions

Inclusion 1
Slope: 4 to 15 percent
Landscape position: toeslopes of foothill valleys
Potential natural vegetation:
Douglas-fir/whortleleaf snowberry h.t. and mountain big sagebrush/Idaho fescue h.t. ecotone
Present vegetation: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush and native or non-native grasses are commonly supported. Widely dispersed seedling through medium sized trees of Douglas-fir or lodgepole pine occur in some areas.
Soils: Soils like the Cryaquolls that are well drained. (Fourme soils)

Inclusion 2
Slope: 2 to 15 percent
Landscape position: toeslopes of incised canyons
Potential natural vegetation: subalpine fir/bluejoint h.t., bluejoint phase
Present vegetation: The subalpine fir/bluejoint reedgrass h.t., bluejoint reedgrass phase or lodgepole pine/bluejoint reedgrass c.t. are supported.
Soils: Cryaquolls, poorly drained are represented.

Inclusion 3
Slope: 0 to 2 percent
Landscape position: all positions
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: The Booth's willow/bluejoint c.t., Booth's willow/beaked sedge c.t., Geyer willow/bluejoint c.t., Geyer willow/beaked sedge c.t. or communities dominated by beaked sedge, bluejoint, or other riparian sedges are commonly supported.
Soils: Soils like Cryaquolls, poorly drained that are very poorly drained and have thick layers of peat on the surface.
Comments: This inclusion is commonly associated with old, persistant beaver ponds or valley segments with less than 1 percent gradient.

Management and Limitations

- Present vegetation, beaver activity, depth to high water tables, channel incisement, and stream flow regime vary with each other in the dynamic riparian systems of this map unit.
- When stream channels become incised into the substratum layers, water tables commonly drop below the major rooting zone of plants and the current vegetation shifts toward upland communities.
- When beaver activity is high, water tables are at or near the soils surface, localized flooding is frequent, and the current vegetation shifts toward riparian sedge dominated communities.
- These riparian systems are dynamic. They respond to subtle changes in management or conditions within the map unit and on adjacent uplands.
- Perennial stream segments on this map unit have the potential for frequent floods of long duration during the peak snowmelt periods of April through July. Localized flooding may occur adjacent to beaver ponds and dams throughout the year.

Salix/Graminoid Cryaquolls
- Fencing is severely limited on some areas of the Cryaquolls soils because of wetness. Seasonal water tables at shallow depths less than 1 foot are a severe limitation.
- Establishing tree seedlings is severely limited on the Salix/Graminoid Cryaquolls ecological type due to plant competition. The soils have medium textured surface layers and seasonal wetness.
- Tree windthrow hazard is severe on the Salix/Graminoid Cryaquolls ecological type because of wetness.
- Off-road vehicle use and developed recreation sites are severely limited on the Cryaquolls soils because of seasonal wetness and frequent flooding.
- Paths and trails are severely limited on the Cryaquolls soils because of seasonal wetness.
- Unsurfaced roads are severely limited on the Cryaquolls soils because of wetness and low

strength.
- Shallow excavations are severely limited on the Cryaquolls soils because of wetness and the cutbanks collapse.

Salix/graminoid Cryaquolls, poorly drained
- Fencing is severely limited on some areas of the Cryaquolls, poorly drained soils because of wetness.
- Seasonal water tables at depths of less than 1 foot are a severe limitation.
- Establishing tree seedlings is severely limited on the Salix/Graminoid Cryaquolls, poorly drained ecological type due to plant competition. The soils have medium textured surface layers and are wet throughout the year.
- Tree windthrow hazard is severe on the Salix/Graminoid Cryaquolls, poorly drained ecological type because of wetness.
- Off-road vehicle use and recreation sites are severely limited on the Cryaquolls, poorly drained soils because of wetness and frequent flooding.
- Paths and trails are severely limited on the Cryaquolls, poorly drained soils because of wetness.
- Unsurfaced roads are severely limited on the Cryaquolls, poorly drained soils because of wetness and low strength.
- Shallow excavations are severely limited on the Cryaquolls, poorly drained because of wetness and the cutbanks collapse.

2608 -- ABLA/CACA4,CACA4 Bootjack and Salix/Graminoid Chickreek, flooded

Floodplains in the forested zone are commonly represented. The topography is characterized by floodplains in trough-like, very low to low gradient (2 to 4 percent), moderate width (100 to 300 feet) valleys of shallow incised canyons. Rosgen stream types C3 and C4 are commonly represented. There are two or three subtle terraces within the floodplain. Meanders are irregular, stream width is 1 to 50 feet, flow regimes are perennial or intermittent, and seasonal variation is dominated by snow melt runoff. Organic debris is infrequent to moderate in occurrence. Beaver dams are few to infrequent. One or both of the components may occur in any delineation of this unit.

Map Unit Setting
Subsection: Madison-Pitchstone Plateaus
Position on the landscape: floodplains
Elevations: 5700 to 7200 feet
Average annual precipitation: 26 inches
Average annual air temperature: 37 degrees F.
Geology: mixed alluvium

ABLA/CACA4,CACA4 Bootjack

Setting
Slopes: 0 to 2 percent
Landscape position: stream terraces, commonly associated with the second and third terraces above perennial stream segments and first terraces of intermittent stream segments

Vegetation Features
Potential natural vegetation: subalpine fir/bluejoint h.t., bluejoint phase
Present vegetation: The lodgepole pine/bluejoint and bluejoint communities are commonly supported.
Timber yield capability class: low

Soil Features
Name: Bootjack
Classification: Fine-loamy over sandy or sandy skeletal, mixed Aeric Cryaquepts
Parent material: alluvium derived from diatomaceous earth materials with obsidian sands in lower profile
Typical profile:
2 to 0 inches - forest litter
0 to 7 inches - light gray silt loam
7 to 15 inches - white loam
15 to 60 inches - variegated stratified coarse sand and fine sand
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 3 inches
Available water capacity, surface to 60 inches: about 4 inches
Drainage class: poorly
Water table: 0 to 18 inches
Flooding hazard: frequent
Kw factor: 0.49
T factor: 2

Comments
The percent of map units represented by this component varies with the stream flow regime and stream width. It is the dominant ecological type on segments where the stream width is less

than 5 feet or the stream is intermittent.

Salix/Graminoid Chickreek, flooded

Setting

Slopes: 0 to 1 percent
Landscape position: stream terraces, commonly associated with the first terrace adjacent to perennial stream segments

Vegetation Features

Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: The beaked sedge c.t. is commonly supported.
Timber yield capability class: none

Soil Features

Name: Chickreek, flooded
Classification: Fine-silty over sandy or sandy-skeletal, mixed, nonacid Typic Cryaquents
Parent material: diatomaceous earth over alluvium derived from obsidian and rhyolite
Typical profile:
0 to 7 inches - very dark grayish brown mucky peat
7 to 18 inches - white silt loam
18 to 60 inches - variegated stratified gravelly sand through extremely gravelly sand
Depth class: very deep (greater than 60 inches)
Permeability: slow
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 8 inches
Drainage class: poorly
Water table: +12 to 18 inches
Flooding hazard: frequent
Kw factor: 0.1
T factor: 2

Comments

The percent of map units represented by this component varies with the stream flow regime and stream width. It is the dominant ecological type on segments where the stream size is greater than 5 feet in width.

Contrasting Inclusions

Inclusion 1

Slope: 0 to 4 percent
Landscape position: stream terraces, commonly associated with the fourth or fifth terraces above the stream channel or on terraces farther removed from the active stream channel
Potential natural vegetation: lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., or lodgepole pine/grouse whortleberry c.t.
Present vegetation: The lodgepole pine/pinegrass c.t. and communities dominated by lodgepole pine and non-native grasses are commonly supported.
Soils: Well drained soils that are 10 to 15 inches deep to substratum layers with a gravelly coarse sand texture. (Perfa soils)

Inclusion 2

Slope: 4 to 15 percent
Landscape position: canyon toeslopes
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The lodgepole pine/grouse whortleberry c.t. is commonly supported.
Soils: Well drained soils that have a gravelly loam texture in the surface and subsoil layers over substratum layers with an extremely cobbly sand loam texture.

Inclusion 3

Slope: 6 to 15 percent
Landscape position: canyon toeslopes, commonly associated with seeps and springs
Potential natural vegetation: willow/grass or sedge dominated communities
Present vegetation: The beaked sedge c.t. or communities dominated by various willow species and beaked sedge are commonly supported.
Soils: Soils like Bootjack and Chickreek, flooded that have 5 to 50 percent boulders or stones throughout the profile.

Management and Limitations

- Present vegetation and depth to seasonal high water tables vary with each other in the dynamic riparian systems of this map unit. When the timber canopies die or are removed on large areas of adjacent uplands, water tables rise in this map unit. The current vegetation shifts toward communities dominated by bluejoint or beaked sedge. Established lodgepole pine in these communities may drown out. When the timber canopies are well established and actively growing on large areas of adjacent uplands, water tables lower and the current vegetation shifts towards drier upland communities in this map unit. Reduced plant competition and reduced wetness allow establishment of tree seedlings in these drier communities.

- This map unit has the potential for frequent floods of long duration during the peak snowmelt periods of April through June.

ABLA/CACA4,CACA4 Bootjack

- Septic tank absorption fields are severely limited on the Bootjack soils because of wetness and flooding and the substratum layers are a poor filter.
- The use of heavy equipment for woodland or rangeland management, off-road vehicle use and paths and trails are severely limited on the Bootjack soils because of seasonal wetness and the potential for soil compaction.
- Tree windthrow hazard is severe on the ABLA/CACA4,CACA4 Bootjack ecological type because of wetness.
- The potential for soil compaction is severe on the ABLA/CACA4,CACA4 Bootjack ecological type because of wetness and the surface and subsoil layers have low strength.
- Pond reservoir areas are severely limited on the Bootjack soils because of seepage in the substratum layers.
- Fencing is severely limited on the Bootjack soils because of seasonal wetness and the substratum layers are too sandy.
- Developed recreation sites are severely limited on the Bootjack soils because of seasonal wetness and flooding.
- Establishing tree seedlings is severely limited on the ABLA/CACA4,CACA4 Bootjack ecological type due to plant competition and seasonal wetness.
- Shallow excavations are severely limited on the Bootjack soils because of wetness and the cutbanks collapse.
- Embankments, dikes and levees are severely limited on the Bootjack soils because of wetness and seepage.
- Livestock grazing or trailing is limited during the spring and summer on the ABLA/CACA4,CACA4 Bootjack ecological type because of wetness and the potential for soil compaction.
- Unsurfaced roads and parking areas are severely limited on the Bootjack soils because of wetness, flooding and low strength.

Salix/Graminoid Chickreek, flooded

- Pond reservoir areas are severely limited on the Chickreek, flooded soils because of seepage in the substratum layers.
- Septic tank absorption fields are severely limited on the Chickreek, flooded soils because of wetness and the substratum layers are a poor filter.
- The potential for soil compaction is severe on the Salix/Graminoid Chickreek, flooded ecological type because of wetness.
- The use of heavy equipment for rangeland or woodland management, off-road vehicle use, paths and trails are severely limited on the Chickreek, flooded soils because of seasonal wetness.
- Shallow excavations are severely limited on the Chickreek, flooded soils because of wetness and the cutbanks collapse.
- Developed recreation sites and structures without basements are severely limited on the Chickreek, flooded soils because of wetness and flooding.
- Unsurfaced roads and parking areas are severely limited on the Chickreek, flooded soils because of wetness, flooding and low strength.
- Embankments, dikes and levees are severely limited on the Chickreek, flooded soils because of wetness and seepage.

2609 -- PIEN Cryaquolls, cobbly substratum and ABLA/CACA4,CACA4 Cryaquolls, cool ecological types

Floodplains in the forested zone are commonly represented. The topography is characterized by floodplains in U-shaped, low to high gradient (2 to 8 percent), narrow to broad width (40 to 800 feet) valleys in deeply incised canyons. The microtopography is very broken and irregular. Rosgen stream types A3 and B3 are commonly represented. The stream width is 1 to 15 feet and the flow regime is perennial or intermittent. Seasonal variation in stream flow is dominated by snow melt runoff. Braided channels and confinedmeanders are common. Medium to large size debris affects up to 30 percent of the active stream channels. Beaver dams are infrequent. One or both of the components may occur in any delineation of this unit.

Map Unit Setting

Subsection: Centennial Mountains, Island Park, Madison-Pitchstone Plateaus
Position on the landscape: floodplains
Elevations: 5600 to 7800 feet

Average annual precipitation: 25 inches
Average annual air temperature: 36 degrees F.
Geology: mixed alluvium

PIEN Cryaquolls, cobbly substratum

Setting
Slopes: 2 to 8 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: Engelmann's spruce/field horsetail h.t. or Engelmann's spruce/fragrant bedstraw h.t.
Present vegetation: The Engelmann's spruce/fragrant bedstraw h.t., Engelmann's spruce/field horsetail h.t., Booth's willow/starry false Solomon's seal c.t., mountain alder/northern black current c.t., Geyer's willow/mesic forb c.t., Bebb willow/stinging nettle community, and Englemann's spruce/red baneberry community are supported.
Timber yield capability class: moderate

Soil Features
Name: Cryaquolls, cobbly substratum
Classification: Cryaquolls
Parent material: mixed alluvium
Typical profile:
0 to 6 inches - black fine sandy loam
6 to 30 inches - very dark grayish brown stratified fine sandy loam, sandy loam and gravelly sandy loam
30 to 60 inches - variegated extremely cobbly loamy sand
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 7.5 inches
Drainage class: somewhat poorly
Water table: +6 to 18 inches
Flooding hazard: frequent
Kw factor: 0.17
T factor: 4

Comments
The percent of map units represented by this ecological type varies with valley width and beaver activity. It is the dominant ecological type in valleys with a narrow width (less than 100 feet) and infrequent beaver dams.

ABLA/CACA4,CACA4 Cryaquolls, cool

Setting
Slopes: 2 to 8 percent
Landscape position: all positions

Vegetation Features
Potential natural vegetation: subalpine fir/bluejoint h.t., bluejoint phase
Present vegetation: The subalpine fir/bluejoint h.t., bluejoint phase, Engelmann's spruce/bluejoint community, lodgepole pine/bluejoint c.t., Booth's willow/bluejoint c.t., and Geyer's willow/bluejoint c.t are supported.
Timber yield capability class: low

Soil Features
Name: Cryaquolls, cool
Classification: Cryaquolls
Parent material: mixed alluvium
Typical profile:
0 to 9 inches - very dark gray loam
9 to 23 inches - gray stratified very fine sandy loam to sandy loam
23 to 60 inches - variegated stratified extremely gravelly loamy coarse sand to extremely cobbly coarse sand
Depth class: very deep (greater than 60 inches)
Permeability: moderate
Available water capacity, surface to 20 inches: about 4 inches
Available water capacity, surface to 60 inches: about 7.5 inches
Drainage class: poorly
Water table: +6 to 6 inches
Flooding hazard: frequent
Kw factor: 0.17
T factor: 4

Comments
The percent of map units represented by this ecological type varies with valley width and beaver activity. It is the dominant ecological type in valleys with a broad width (greater than 300 feet) or stream segments with persistent beaver dams.

Contrasting Inclusions

Inclusion 1
Slope: 2 to 6 percent
Landscape position: all positions
Potential natural vegetation: subalpine fir/bluejoint h.t., bluejoint phase
Present vegetation: Communities dominated by Englemann's spruce and bluejoint or beaked sedge are commonly supported.
Soils: Soils like the Cryaquolls, cobbly

substratum that have thick layers of peat on the surface and are very poorly drained.
Comments: This inclusion is commonly associated with relic beaver ponds.

Inclusion 2
Slope: 4 to 15 percent
Landscape position: toeslopes and higher terraces
Potential natural vegetation: subalpine fir/grouse whortleberry h.t., pinegrass phase
Present vegetation: The subalpine fir/grouse whortleberry h.t., pinegrass phase, the lodgepole pine/grouse whortleberry c.t. or the lodgepole pine/pinegrass c.t. are supported.
Soils: Soils that are well drained.

Management and Limitations

- Present vegetation, beaver activity, depth to highwater tables, channel incisement, and stream flow regime vary with each other in the dynamic riparian systems of this map unit. When stream channels become incised into the substratum layers, water tables commonly drop below the major rooting zone of plants and the current vegetation shifts towards upland communities. When beaver activity is high, water tables are at or near the soils surface, localized flooding is frequent, and the current vegetation shifts toward riparian sedge dominated communities. These riparian systems are dynamic. They respond to subtle changes in management or conditions within the map unit and on adjacent uplands.
- Perennial stream segments on this map unit have the potential for frequent floods of long duration during the peak snowmelt periods of April through July. Localized flooding may occur adjacent to beaver ponds and dams throughout the year.

PIEN Cryaquolls, cobbly substratum
- Fencing is severely limited on some areas of the Cryaquolls, cobbly substratum soils because of wetness. Seasonal water tables at shallow depths less than 1 foot are a severe limitation.
- Establishing tree seedlings is severely limited on the PIEN Cryaquolls, cobbly substratum ecological type due to plant competition. The soils have medium textured surface layers and seasonal wetness.
- Tree windthrow hazard is severe on the PIEN Cryaquolls, cobbly substratum ecological type because of wetness.
- Off-road vehicle use and developed recreation sites are severely limited on the Cryaquolls, cobbly substratum soils because of seasonal wetness and frequent flooding.
- Paths and trails are severely limited on the Cryaquolls, cobbly substratum soils because of seasonal wetness.
- Unsurfaced roads are severely limited on the Cryaquolls , cobbly substratum soils because of wetness.
- Shallow excavations are severely limited on the Cryaquolls, cobbly substratum soils because of wetness, the cutbanks collapse, and the substratum layers are too rocky.

ABLA/CACA4,CACA4 Cryaquolls, cool
- Fencing is severely limited on some areas of the Cryaquolls, cool soils because of wetness. Seasonal water tables at shallow depths less than 1 foot are a severe limitation.
- Establishing tree seedlings is severely limited on the ABLA/CACA4,CACA4 Cryaquolls, cool ecological type due to plant competition. The soils have medium textured surface layers and are wet throughout the year.
- Tree windthrow hazard is severe on the ABLA/CACA4,CACA4 Cryaquolls, cool ecological type because of wetness.
- Off-road vehicle use and developed recreation sites are severely limited on the Cryaquolls, cool soils because of wetness and frequent flooding.
- Paths and trails are severely limited on the Cryaquolls, cool soils because of wetness.
- Unsurfaced roads are severely limited on the Cryaquolls, cool soils because of wetness.
- Shallow excavations are severely limited on the Cryaquolls, cool soils because of wetness, the cutbanks collapse, and the substratum layers are too rocky.

ABLA Castan Ecological Type

This ecological type is named for the occurrence of subalpine fir/blue huckleberry habitat type, grouse whortleberry phase or subalpine/grouse whortleberry habitat type, grouse whortleberry or pinegrass phase on Castan soils.

Environmental Setting

Landforms: escarpments of plateaus
Parent Material: colluvium or residuum derived from tephra and loess
Slope range: 30 to 50 percent
Elevation: 6500 to 8000 feet
Average annual precipitation: 30 to 60 inches
Average annual temperature: 30 to 37 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Abies lasiocarpa/Vaccinium scoparium* habitat type, *Vaccinium scoparium* phase.

Present communities: The lodgepole pine/grouse whortleberry c.t., lodgepole pine/blue huckleberry c.t., lodgepole pine/pinegrass c.t. and lodgepole pine/elk sedge c.t. are commonly supported.

Comments: Recurring fires keep most of the area in this ecological type in pure lodgepole pine stands. Few mature subalpine fir stands are presently represented.

Vegetation Composition (N=5)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	80	9.7
Tree d.b.h. < 5 inches		
Abies lasiocarpa	40	1.5
Pinus albicaulis	40	1.7
Pinus contorta	100	8.6
Pseudotsuga menziesii	80	1.3
Shrubs		
Acer glabrum	20	0.5
Alnus incana var. occidentalis	20	0.5
Amelanchier alnifolia	20	2.0
Juniperus communis	20	0.5
Lonicera utahensis	80	3.0
Ribes sp.	40	0.5
Ribes viscosissimum	20	1.0
Salix spp.	20	0.5
Salix scouleriana	20	0.5
Shepherdia canadensis	20	0.5
Sorbus scopulina	40	0.7
Spiraea betulifolia	100	4.1
Vaccinium globulare	80	4.1
Vaccinium scoparium	100	27.0
Graminoids		
Carex geyeri	60	13.3
Carex rossii	20	1.0
Calamagrostis rubescens	100	3.5
Forbs		
Apocynum androsaemifolium	20	1.0
Arnica cordifolia	60	0.6
Aster engelmannii	20	1.0
Corallorhiza sp.	20	0.5
Epilobium angustifolium	60	0.6
Hieracium albiflorum	60	0.5
Hieracium cynoglossoides	20	0.5
Lupinus argenteus	40	0.5
Pterospora andromedea	60	0.5
Tragopogon dubius	20	0.5

Soil

The soils of this ecological type are represented by the Castan series.

Taxonomic class: Ashy-skeletal Humic Vitricryands

Typical pedon description

Castan cobbly silt loam, supporting a lodgepole pine/blue huckleberry community type, woodland; on a concave slope of 30 percent with a north aspect: about 6840 feet elevation. (Colors are for air dry soil unless otherwise noted.)

O—1 to 0 inches; forest litter of needles, twigs and leaves; abrupt smooth boundary.

A1—0 to 11 inches; brown (10YR 5/3) cobbly silt loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure parting to moderate fine granular; soft, very friable, nonsticky and slightly plastic; many very fine, common fine, few medium and coarse roots; many very fine irregular pores; 10 percent pebbles, 10 percent cobbles, trace stones and boulders; moderately acid (pH 5.6); clear smooth boundary.

A2--11 to 16 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine, common fine, few medium and coarse roots; many very fine tubular pores; 10 percent pebbles, 10 percent cobbles, trace stones and boulders; moderately acid (pH 5.6); clear wavy boundary.

B/E--16 to 30 inches; light yellowish brown (10YR 6/4) and very pale brown (10YR 7/3) very gravelly sandy loam, dark yellowish brown (10YR 4/4) and brown (10YR 5/3) moist; 80 percent B material and 20 percent E material in a fine (less than 5 mm) irregular matrix; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots and few fine, medium and coarse roots; many very fine tubular pores; 40 percent pebbles, 10 percent cobbles and trace stones and boulders; moderately acid (pH 6.0); clear smooth boundary.

2E/B--30 to 38 inches; very pale brown (10YR 7/3) and light yellowish brown (10YR 6/4) extremely gravelly sandy loam, brown (10YR 5/3) and dark yellowish brown (10YR 4/4); 80 percent E material and 20 percent B material in a medium (5 to 15 mm) irregular matrix; weak medium subangular blocky parting to weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots, few fine and medium roots; many very fine irregular pores; 50 percent pebbles, 10 percent cobbles and trace stones and boulders; moderately acid (pH 6.0); clear smooth boundary.

2B/E--38 to 49 inches; pale brown (10YR 6/3) and white (10YR 8/2) extremely gravelly sandy loam, brown (10YR 4/3) and light brownish gray (10YR 6/2) moist; 50 percent B material and 50 percent E material in a coarse (greater than 15 mm) irregular matrix; weak fine subangular blocky structure (B portion) and weak fine granular structure (E portion); slightly hard (B portion) and soft (E portion), very friable, nonsticky and nonplastic; few very fine roots; many very fine tubular pores (B portion) and many very fine irregular pores (E portion); 50 percent pebbles, 10 percent cobbles; trace stones and boulders; slightly acid (pH 6.2); clear smooth boundary.

2BC--49 to 60 inches; pale brown (10YR 6/3) extremely gravelly loamy sand, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine irregular pores; continuous white (10YR 8/2) uncoated silt grains capping cobbles stones and boulders, light brownish gray (10YR 6/2) moist; 65 percent pebbles, 10 percent cobbles, trace stones and boulders; slightly acid (pH 6.4).

Typical pedon location
Legal description: about 600 feet west and 50 feet south of the northeast corner of section 14, T. 14 N., R, 44 E., ID.
Latitude: 44 degrees, 32 minutes, 43 seconds north.
Longitude: 111 degrees 13 minutes, 53 seconds west.
Map unit in which located: 1225

Range in characteristics
Profile:
Depth class - very deep
Drainage - well drained
Umbric epipedon thickness - 10 to 16 inches
Depth of andic soil properties - 15 to 30 inches
Solum thickness - 30 to 50 inches
Depth to lithologic discontinuity - 20 to 40 inches
Volcanic glass in the 0.02 to 2.0 mm fraction - greater than 50 percent
Rock fragments in the particle size control section averages - 35 to 65 percent

O horizon:
Thickness - commonly 0 to 2 inches thick
Form - commonly forest litter of needles, twigs and leaves on lightly or undisturbed pedons and absent on pedons where recent, heavy mechanical disturbance has occurred.

A horizons:
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry and moist
Reaction - moderately or slightly acid
Ammonium oxalate extractable Al plus 1/2 Fe - 0.4 to 1.0 percent
Bulk density - 0.65 to 1.00 grams per cubic centimeter
Phosphate retention - 35 to 60 percent

B/E or E/B horizons:
Value -
B material - 6 or 7 dry, 4 or 5 moist

E material - 7 or 8 dry, 5 or 6 moist
Chroma -
B material - 3 or 4 dry or moist
E material - 2 or 3 dry or moist
Texture, less than 2 mm fraction - silt loam, sandy loam or loam
Pebbles - 25 to 50 percent
Cobbles - 5 to 20 percent
Stones or boulders - 0 to 20 percent
Reaction - moderately or slightly acid
Ammonium oxalate extractable Al plus 1/2 Fe - 0.2 to 1.0 percent
Phosphate retention - 20 to 60 percent

2E/B or 2B/E horizons:
Value -
B material - 6 or 7 dry, 4 or 5 moist
E material - 7 or 8 dry, 5 or 6 moist
Chroma -
B material - 3 or 4 dry or moist
E material - 2 or 3 dry or moist
Texture, less than 2 mm fraction - silt loam, sandy loam or loam
Pebbles - 25 to 50 percent
Cobbles - 5 to 20 percent
Stones or boulders - 0 to 20 percent
Reaction - moderately or slightly acid
Ammonium oxalate extractable Al plus 1/2 Fe - less than 0.4 percent
Phosphate retention - less than 35 percent

2BC horizon:
Hue - 7.5YR, 10YR or 2.5Y
Value - 6 or 7 dry, 4 to 6 moist
Chroma - 2 or 3 dry or moist
Texture, less than 2 mm fraction - loamy sand, loamy coarse sand
Rock fragments - 50 to 80 percent
Pebbles - 30 to 60 percent
Cobbles, stones or boulders - 5 to 35 percent
Ammonium oxalate extracatble Al plus 1/2 Fe - less than 0.4 percent
Reaction - slightly acid or neutral
Phosphate retention - less than 35 percent

2C horizon:
Occurrence - present in some pedons
Texture, less than 2 mm fraction - sand or coarse sand
Rock fragments - 50 to 80 percent
Ammonium oxalate extractable Al plus 1/2 Fe - less than 0.4 percent
Reaction - slightly acid or neutral
Phosphate retention - less than 35 percent

ABLA/ACGL Lag, humid Ecological Type

This ecological type is named for the occurrence of subalpine fir/Rocky Mountain maple habitat type on Lag, humid soils.

Environmental Setting

Landforms: canyons
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 50 to 70 percent
Elevation: 5300 to 6600 feet
Average annual precipitation: 20 to 25 inches
Average annual temperature: 35 to 41 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Abies lasiocarpa/Acer glabrum* habitat type.

Present communities: The subalpine fir/Rocky Mountain maple h.t., Douglas-fir/Rocky Mountain maple community or quaking aspen/Scouler's willow c.t. are commonly supported.

Vegetation Composition (N=8)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	25	2.0
Pinus contorta	37	4.5
Populus tremuloides	12	2.0
Pseudotsuga menziesii	75	17.1
Tree d.b.h. < 5 inches		
Abies lasiocarpa	12	1.5
Picea engelmannii	12	15.5
Pinus contorta	12	3.5
Populus tremuloides	37	3.0
Pseudotsuga menziesii	62	2.2
Shrubs		
Acer glabrum	75	9.3
Amelanchier alnifolia	75	6.1
Arctostaphylos uva-ursi	12	4.0
Berberis repens	50	4.0
Ceanothus velutinus	25	5.0
Chimaphila umbellata	12	0.5
Clematis columbiana	62	1.3
Lonicera utahensis	62	4.6

Prunus virginiana ssp. melanocarpa	62	3.3
Ribes viscosissimum	12	6.0
Rosa acicularis	12	0.5
Rosa sp.	12	1.0
Rubus parviflorus	25	12.5
Salix scouleriana	50	8.5
Shepherdia canadensis	25	15.5
Sorbus scopulina	87	7.9
Spiraea betulifolia	87	13.8
Symphoricarpos albus	50	9.5
Symphoricarpos oreophilus	50	3.0
Vaccinium globulare	50	15.0
Graminoids		
Agropyron trachycaulum	12	1.0
Bromus carinatus	62	1.8
Bromus sp.	12	0.5
Calamagrostis rubescens	87	7.9
Carex geyeri	37	4.0
Carex sp.	12	0.5
Dactylis glomerata	12	3.0
Elymus glaucus	87	2.5
Melica sp.	12	2.0
Phleum pratense	12	2.0
Poa nervosa	12	0.5
Poa pratensis	12	0.5
Stipa columbiana	12	0.5
Trisetum spicatum	12	1.0
Unknown grasses w/ >trace cover	12	1.0
Forbs		
Achillea millefolium	25	0.5
Actaea rubra	25	0.5
Agoseris glauca	12	0.5
Agastache urticifolia	37	8.6
Apocynum androsaemifolium	25	1.0
Aquilegia flavescens	12	1.0
Aquilegia formosa	12	0.5
Arnica cordifolia	62	2.9
Aster conspicuus	12	0.5
Aster engelmannii	37	3.1
Aster sp.	25	2.7
Cirsium arvense	12	1.0
Disporum trachycarpum	25	0.7
Epilobium angustifolium	50	9.7
Epilobium minutum	12	1.0
Erigeron sp.	12	0.5
Erigeron peregrinus	12	2.0
Fragaria sp.	12	1.0
Fragaria vesca	25	1.7
Galium triflorum	12	2.0
Geranium viscosissimum	37	0.6
Goodyera oblongifolia	12	0.5
Viguiera (Heliomeris) multiflora	12	2.0
Helianthella uniflora	12	1.0
Hieracium albiflorum	12	0.5
Ligusticum sp.	12	0.5
Lupinus argenteus	12	0.5
Lupinus sp.	12	5.0
Microsteris gracilis	12	0.5
Mitella stauropetala	12	0.5
unknown Orchidaceae	12	0.5
Osmorhiza chilensis	75	3.5
Osmorhiza occidentalis	12	1.0
Oxytropis campestris	12	0.5
Pedicularis bracteosa	12	0.5
Perideridia gairdneri	12	0.5
Pedicularis racemosa	25	0.5
Polygonum douglasii	12	4.0
Potentilla glandulosa	12	0.5
Pyrola secunda	25	1.7
Pyrola (Moneses) uniflora	12	0.5
Rumex paucifolius	12	0.5
Senecio sp.	12	8.0
Senecio serra	25	2.0
Senecio triangularis	12	1.0
Smilacina sp.	12	2.0
Smilacina racemosa	50	1.1
Smilacina stellata	12	0.5
Solidago missouriensis	12	5.0
Streptopus amplexifolius	12	1.0
Thalictrum occidentale	100	3.8
Tragopogon dubius	12	0.5
unknown forbs w/ > trace cover	12	2.0

Soil

The soils of this ecological type are represented by the Lag series, humid phase.

Taxonomic class: Loamy-skeletal, mixed Typic Cryoborolls

Typical pedon description

Lag, humid loam; supporting a subalpine fir/Rocky Mountain maple habitat type, woodland; on a 60 percent slope with a north aspect at 6000 feet elevation. (Colors are for dry soil unless otherwise stated.)

O—2 to 0 inches; forest litter; leaves, needles, stems, trunks and roots in various stages of decay.

A1–0 to 2 inches; very dark grayish brown (10YR 3/1) loam, black (10YR 2/1) moist; moderate very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine irregular pores; trace rock fragments; slightly acid (pH 6.3); abrupt smooth boundary.

A2–2 to 12 inches; dark grayish brown (10 YR 4/2) very gravelly loam, very dark grayish brown moist; moderate coarse granular structure parting to weak very fine granular; soft, very friable, nonsticky and slightly plastic; many very fine and fine and common medium and coarse roots; many very fine irregular pores; 40 percent pebbles, 5 percent cobbles, 5 percent stones and trace boulders; slightly acid (pH 6.3) clear wavy boundary.

Bw–12 to 54 inches; light brownish gray (10YR 6/2) extremely stony sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium granular structure parting to moderate very fine granular; soft, very friable, nonsticky and nonplastic; many very fine, common fine and few medium and coarse roots; many very fine irregular pores; 20 percent pebbles, 30 percent cobbles, 35 percent stones and 5 percent boulders; neutral (pH 7.1); diffuse wavy boundary.

BC–54 to 65 inches; light brownish gray (10YR 6/2) extremely stony sandy loam, dark grayish brown (10YR 4/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine, common fine and medium and few coarse roots; many very fine irregular pores; 5 percent pebbles, 10 percent cobbles and 80 percent stones and boulders; neutral (pH 6.7).

Typical pedon location
Legal description about 1900 feet south and 2600 feet west of the northeast corner of section 31, T.10N.,R.45E., ID.
Latitude: 44 degrees, 9 minutes, 0 seconds north.
Longitude: 111 degrees, 10 minutes, 52 seconds west.
Map Unit in which located: 1222

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 15 inches
Clay in particle size control section, weighted average - 5 to 16 percent
Rock fragments in particle size control section, weighted average - 50 to 90 percent
Reaction - slightly acid to neutral

0 horizon:
Thickness - less than 1 to 4 inches

A and AB horizons:
Hue - 10YR or 7.5YR
Value - 3 to 5 dry; 2 or 3 moist
Chroma - 1 to 3 dry or moist
Rock fragments - 0 to 70 percent
Pebbles - 0 to 50 percent
Cobbles - 0 to 50 percent
Stones or boulders - 0 to 15 percent

Bw horizons:
Value - 5 to 7 dry, 3 to 5 moist
Chroma - 2 to 4 dry or moist
Texture, less than 2 mm fraction - loam, silt loam or sandy loam
Rock fragments - 40 to 90 percent
Pebbles - 5 to 50 percent
Cobbles - 0 to 50 percent
Stones or boulders - 0 to 30 percent

BC or C horizons:
Hue - 10YR or 2.5Y
Value - 5 to 7 dry, 3 to 5 moist
Chroma - 2 or 3 dry or moist
Texture, less than 2 mm fraction - loam or sandy loam
Rock fragments - 50 to 90 percent
Pebbles - 5 to 50 percent
Cobbles - 5 to 65 percent
Stones or boulders - 0 to 70 percent

Related ecological types
PSME/SYAL Lag
PSME/SYAL Lag, till substratum

Both of these ecological types occur on drier landscape positions.

ABLA/CACA4,CACA4 Bootjack Ecological Type

This ecological type is named for the occurrence

of subalpine fir/bluejoint habitat type, bluejoint phase on Bootjack soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: outwash plains and floodplains
Parent Material: alluvium derived from diatomaceous earth materials with obsidian sands in lower profile
Slope range: 0 to 2 percent
Elevation: 5700 to 7200 feet
Average annual precipitation: 20 to 30 inches
Average annual temperature: 36 to 40 degrees F.
Temperature regime: cryic
Moisture regime: aquic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Calamagrostis canadensis* habitat type, *Calamagrostis canadensis* phase.

Present communities: The lodgepole pine/bluejoint communities, bluejoint communities and communities dominated by riparian sedges and non-native grasses are commonly supported.

Comments: Subalpine fir is slow to return/establish on this ecological type. Disturbance increases bluejoint cover, which inhibits tree establishment.

Vegetation Composition (N=2)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	50	8.0
Tree d.b.h. < 5 inches		
Pinus contorta	100	20.0
Populus tremuloides	50	1.0
Shrubs		
Arctostaphylos uva-ursi	50	1.0
Lonicera involucrata	50	1.0
Salix bebbiana	50	8.0
Salix exigua	50	1.0
Salix scouleriana	50	0.5
Vaccinium caespitosum	50	1.0
Vaccinium scoparium	50	2.0
Graminoids		
Calamagrostis canadensis	100	29.0
Danthonia intermedia	50	1.0
Danthonia sp.	50	2.0
Deschampsia cespitosa	100	5.2
Phleum pratense	50	0.5
Poa palustris	50	1.0
Forbs		
Achillea millefolium	50	8.0
Antennaria corymbosa	50	8.0
Aster integrifolius	50	0.5
Aster occidentalis	50	2.0
Epilobium angustifolium	50	0.5
Epilobium minutum	50	0.5
Fragaria virginiana	50	25.0
Geum macrophyllum	50	0.5
Geranium viscosissimum	50	3.0
Spiranthes romanzoffiana	50	1.0
Zigadenus sp.	50	2.0

Soil
The soils of this ecological type are represented by the Bootjack series.

Taxonomic class: Fine-loamy over sandy or sandy-skeletal mixed Aeric Cryaquepts

Typical pedon description
Bootjack silt loam supporting lodgepole pine, bluejoint community type; on a 1 percent slope; about 6390 feet elevation. (Colors are for dry soil unless otherwise noted.)

0e–2 to 0 inches; Forest litter; partially decomposed needles, twigs and cones; abrupt smooth boundary.

A–0 to 3 inches; light gray (10YR 7/1) silt loam, grayish brown (2.5Y 5/2) moist; moderate medium platy structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine through medium roots; few very fine irregular pores; strongly acid (pH 5.1); clear smooth boundary.

Bw–3 to 7 inches; white (10YR 8/1) silt loam, light brownish gray (2.5Y 6/2) moist; common medium brownish yellow (10YR 6/6 moist redox concentrations; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine through medium roots; few very fine irregular pores; strongly acid (pH 5.1); clear smooth boundary.

Bw2–7 to 15 inches; white (10YR 8/1) loam, light brownish gray (2.5Y 6/2) moist; common medium light brown (5Y 6/4) moist redox concentrations; moderate medium subangular blocky structure, slightly hard, firm, nonsticky and nonplastic; few very fine through medium roots; few very fine irregular pores; moderately acid (pH

5.6); clear smooth boundary.

2C1—15 to 35 inches; variegated stratified coarse sand and fine sand; common medium brownish yellow (10YR 6/6) moist redox concentrations; single grain, loose, nonsticky and nonplastic; few fine roots; common fine irregular pores; moderately acid (pH 5.8); abrupt smooth boundary.

2C2—35 to 60 inches; variegated coarse sand; few medium pale olive (5Y 6/4) moist redox concentrations; single grain; loose; many fine irregular pores; slightly acid (pH 6.4).

Typical pedon location
Legal description: about 500 feet north and 500 feet east of the southwest corner of sec. 34, T.13N., R.44E., ID.
Latitude: 44 degrees, 29 minutes, 25 seconds north.
Longitude: 111 degrees, 15 minutes, 05 seconds west.
Map unit in which located: 2040

Range in characteristics
Profile:
Depth class - very deep
Drainage class - poorly and somewhat poorly drained
Water table, depth - 0 to 18 inches
Water table, kind - apparent
Water table, duration - April to June
Depth to redox concentrations - 2 to 20 inches
Solum thickness and depth to coarse sand and gravel - 15 to 40 inches

A horizon:
Hue - 10YR or 2.5Y
Value - 4 through 7 dry, 2 through 5 moist
Chroma - 1 or 2 dry and moist
Reaction - strongly acid to slightly acid

B horizons:
Hue - 10YR or 2.5Y
Value - 6 through 8 dry, 4 through 6 moist
Chroma - 1 or 2 dry and moist
Texture, less than 2mm fraction - silt loam, loam, clay loam
Rock fragments - 0 to 15 percent
Reaction - strongly acid through neutral

2C horizons:
Hue - 10YR or 2.5Y
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 1 or 2 dry and moist
Texture - ranges from fine sand to extremely gravelly coarse sand
Rock fragments - 0 to 85 percent
Reaction - moderately acid through neutral

ABLA/CACA4,CACA4 Cryaquolls, cool Ecological Type

This ecological type is named for the occurrence of subalpine fir/bluejoint habitat type, bluejoint phase on Cryaquolls, cool soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: floodplains
Parent Material: mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5600 to 7800 feet
Average annual precipitation: 18 to 30 inches
Average annual temperature: 34 to 40 degrees F.
Temperature regime: cryic
Moisture regime: aquic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Calamagrostis canadensis* habitat type, *Calamagrostis canadensis* phase.

Present communities: The subalpine fir/bluejoint h.t., bluejoint phase, lodgepole pine/bluejoint c.t. and willow/bluejoint community are supported.

Vegetation Composition (N=2)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	100	3.7
Picea engelmannii	100	17.5
Pinus contorta	50	7.0
Tree d.b.h. < 5 inches		
Abies lasiocarpa	100	3.2
Picea engelmannii	50	1.5
Shrubs		
Berberis repens	50	0.5
Lonicera utahensis	100	0.7
Ribes lacustre	50	0.5

Sorbus scopulina	100	0.5
Spiraea betulifolia	50	1.0
Symphoricarpos oreophilus	100	0.5
Vaccinium caespitosum	50	1.0
Vaccinium scoparium	50	0.5
Graminoids		
Bromus sp.	50	0.5
Calamagrostis canadensis	100	11.0
Calamagrostis rubescens	50	0.5
Elymus glaucus	50	0.5
Forbs		
Achillea millefolium	50	0.5
Actaea rubra	100	0.7
Allium sp.	50	0.5
Angelica arguta	100	2.2
Aquilegia flavescens	100	0.7
Arnica cordifolia	100	7.0
Aster sp.	50	0.5
Calypso bulbosa	50	0.5
Disporum trachycarpum	50	0.5
Equisetum arvense	50	5.0
Erythronium grandiflorum	50	1.0
Fragaria virginiana	100	1.2
Galium sp.	50	1.0
Galium triflorum	100	0.5
Geranium sp.	50	2.0
Geranium richardsonii	50	2.0
Osmorhiza chilensis	100	0.5
Potentilla glandulosa	50	0.5
Pyrola asarifolia	100	0.5
Pyrola secunda	100	0.7
Saxifraga arguta (odontoloma)	50	0.5
Senecio triangularis	50	0.5
Smilacina racemosa	50	0.5
Smilacina stellata	50	0.5
Streptopus amplexifolius	50	0.5
Taraxacum officinale	100	0.5
Thalictrum occidentale	100	7.5
Trifolium sp.	50	0.5
Valeriana occidentalis	100	0.5

Soil
The soils of this ecological type are represented by the Cryaquolls, cool great group.

Taxonomic class: Cryaquolls

Typical pedon description
Cryaquolls, loam; supporting a willow/bluejoint community, riparian area; on a flood plain, 5 percent slope; about 6300 feet elevation. When described on September 26, 1991 the water table was at 17 inches. (Colors are for dry soil unless otherwise noted.)

A--0 to 9 inches; very dark gray (10YR 3/1) loam, black (10YR 2/1) moist; strong medium granular structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine and fine, few medium roots; many very fine through medium irregular pores; 5 percent pebbles; slightly acid (pH 6.3); abrupt wavy boundary.

C1--9 to 23 inches; gray (10YR 5/1) stratified loamy sand through very fine sandy loam, dark gray (10YR 4/1) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine irregular pores; common medium prominent (10YR 4/4) and (7.5YR 4/4) Fe accumulations on ped faces, lining pores and root channels; 5 percent pebbles; moderately acid (pH 5.8); abrupt wavy boundary.

2C2--23 to 60 inches; varigated extremely gravelly loamy coarse sand; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many medium and coarse irregular pores; 80 percent pebbles; moderately acid (pH 5.8).

Typical pedon location
Legal description: about 2000 feet west and 1600 feet north of the southeast corner of section 20, T. 10 N., R. 45 E., ID.
Latitude: 44 degrees, 10 minutes, 33 seconds north.
Longitude: 111 degrees, 9 minutes, 45 seconds west.
Map unit in which located: 2609

Range in characteristics
Profile:
Depth class - very deep
Drainage class - poorly
Water table, depth - + 6 to 6 inches
Water table, kind - apparent
Water table, duration - all year
Depth to redox concentrations - 2 to 18 inches
Thickness of mollic epipedon - 7 to 30 inches
Depth of solum - 15 to 40 inches
Depth to lithologic discontinuity - 15 to greater than 60 inches
Reaction - moderately acid to neutral
Other - An Oe horizon, 1 to 8 inches thick is present on some pedons.

A horizons:
Hue - 7.5YR or 10YR
Value - 3 or 4 dry, 2 or 3 moist
Chroma - 1 or 2 dry or moist
Texture - silt loam or loam
Clay - 7 to 27 percent
Pebbles - 0 to 15 percent

B horizons:
Hue - 7.5YR to 2.5Y
Value - 4 or 5 dry, 3 or 4 moist
Chroma - 1 or 2 dry or moist
Redox concentrations, hue - 5YR to 5Y
Value - 2 or 4 dry or moist
Chroma - 0 to 6 dry or moist
Texture - silt loam, silty clay loam, or loam
Clay - 15 to 30 percent
Pebbles - 0 to 15 percent
Other - horizon is absent in some pedons

C horizons:
Hue - 10YR to 5Y
Value - 5 to 7 dry, 4 to 6 moist
Chroma - 1 or 2 dry or moist
Redox concentrations, hue - 5YR to 5Y
Value - 2 to 4 dry or moist
Chroma - 0 to 6 dry or moist
Texture - stratified silt loam, loam, very fine sandy loam, fine sandy loam, sandy loam or gravelly sandy loam
Clay - 4 to 20 percent
Pebbles - 0 to 25 percent

2C horizons:
Texture - stratified very gravelly loam, very gravelly sandy loam, extremely gravelly sandy loam, extremely gravelly loamy sand, extremely gravelly sand, extremely cobbly sandy loam, extremely cobbly loamy sand, extremely cobbly loamy coarse sand, extremely cobbly sand or extremely cobbly coarse sand
Clay - 1 to 12 percent
Rock fragments - 35 to 90 percent

ABLA/CARU,CARU Fitzwil, warm Ecological Type

This ecological type is named for the occurrence of subalpine fir/pinegrass habitat type, pinegrass phase on Fitzwil warm soils.

Environmental Setting
Landforms: foothills and mountains
Parent Material: local alluvium or colluvium derived from loess and rhyolitic tuff
Slope range: 4 to 20 percent
Elevation: 6500 to 8000 feet
Average annual precipitation: 25 to 30 inches
Average annual temperature: 34 to 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Calamagrostis rubescens* habitat type *Calamagrostis rubescens* phase.

Present communities: The subalpine fir/pinegrass h.t., pinegrass phase, and Douglas-fir/pinegrass, Douglas-fir/whortleleaf snowberry and subalpine fir/subalpine big sagebrush/mountain brome communities are supported on lightly or nondisturbed areas. The Douglas-fir/non-native grass community is supported on selectively cut and seeded areas. Communities dominated by snowbrush ceanothus or elksedge are supported on clearcut and scarified areas.

Vegetation Composition (N=16)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	25	3.3
Pinus contorta	6	15.0
Populus tremuloides	12	2.0
Pseudotsuga menziesii	100	22.8
Tree d.b.h. < 5 inches		
Abies lasiocarpa	37	1.2
Pinus contorta	18	0.8
Pinus flexilis	12	1.0
Populus tremuloides	25	3.6
Pseudotsuga menziesii	100	1.9
Shrubs		
Amelanchier alnifolia	31	0.5
Artemisia tridentata ssp. vaseyana	12	0.7
Berberis repens	68	1.2
Ceanothus velutinus	12	0.5
Chimaphila umbellata	6	0.5
Lonicera utahensis	18	1.0
Prunus virginiana ssp. melanocarpa	50	1.7
Ribes sp.	6	0.5
Ribes lacustre	6	1.0

Ribes viscosissimum	12	0.5
Rosa acicularis	6	0.5
Rubus parviflorus	6	0.5
Salix spp.	6	0.5
Salix scouleriana	6	2.0
Sorbus scopulina	50	0.5
Spiraea betulifolia	50	3.7
Symphoricarpos albus	6	1.0
Symphoricarpos oreophilus	93	7.8
Graminoids		
Agropyron intermedium	6	0.5
Agropyron repens	6	3.0
Agrostis sp.	6	0.5
Agropyron trachycaulum	12	0.7
Bromus carinatus	56	2.0
Bromus inermis	6	0.5
Bromus sp.	18	0.8
Calamagrostis rubescens	100	14.0
Carex geyeri	75	10.7
Carex hoodii	12	0.5
Carex sp.	6	0.5
Carex rossii	12	0.5
Dactylis glomerata	6	0.5
Elymus glaucus	43	1.3
Elymus sp.	6	0.5
Koeleria nitida (cristata) (macrantha)	6	1.0
Melica spectabilis	43	0.8
Phleum alpinum	6	0.5
Phleum pratense	12	1.2
Poa sp.	12	0.5
Poa interior	6	0.5
Poa nervosa	18	0.8
Poa nervosa var. wheeleri	18	0.5
Poa pratensis	12	2.0
Stipa columbiana	6	0.5
Forbs		
Achillea millefolium	81	0.5
Agoseris aurantiaca	6	0.5
Agoseris glauca	18	0.6
Agastache urticifolia	25	1.1
Antennaria microphylla	18	0.6
Aquilegia formosa	6	0.5
Arabis sp.	6	0.5
Arnica cordifolia	87	4.0
Arnica latifolia	12	1.7
Arnica sp.	6	4.0
Aster conspicuus	6	1.0
Aster engelmannii	50	0.7
Astragalus miser	12	0.5
Aster occidentalis	6	0.5
Aster perelegans	12	0.5
Aster sp.	12	1.7
Balsamorhiza macrophylla	6	0.5
Balsamorhiza sagittata	12	1.2
unknown Boraginaceae	6	0.5
Calochortus macrocarpus	6	0.5
Castilleja sp.	6	0.5
unknown Chenopodiaceae	6	0.5
Cirsium sp.	6	0.5
Claytonia lanceolata	12	0.5
Collomia linearis	6	0.5
Collinsia parviflora	37	0.5
Corallorhiza maculata	25	0.5
Delphinium nuttallianum	12	0.5
Delphinium occidentale	6	0.5
Epilobium angustifolium	31	0.6
Epilobium minutum	6	1.0
Erythronium grandiflorum	43	0.8
Erigeron speciosus	6	0.5
Fragaria sp.	6	0.5
Fritillaria atropurpurea	12	0.5
Fritillaria pudica	6	0.5
Fragaria vesca	43	0.7
Fragaria virginiana	31	0.8
Galium aparine	6	0.5
Galium bifolium	12	0.5
Galium boreale	25	0.5
Galium sp.	6	0.5
Galium triflorum	6	0.5
Geranium richardsonii	6	1.0
Geranium viscosissimum	87	1.3
Habenaria sp.	6	0.5
Hackelia sp.	31	0.5
Hackelia micrantha (jessicae)	6	0.5
Helianthella uniflora	12	1.2
Hieracium albertinum (cynoglossoides)	12	0.7
Hieracium albiflorum	12	0.7
Hieracium sp.	6	0.5
Hydrophyllum capitatum	37	0.5
Lithophragma parviflorum	12	0.5
Lithospermum ruderale	6	1.0
Lupinus argenteus	68	1.2
Lupinus sericeus	6	1.0
Microsteris gracilis	18	0.5
Mitella stauropetala	6	0.5
Nemophila parviflora	12	0.5
Osmorhiza chilensis	62	0.7
Osmorhiza sp.	6	0.5
Osmorhiza occidentalis	50	0.5
Pedicularis bracteosa	6	0.5
Pedicularis racemosa	12	0.7
Perideridia gairdneri	56	0.5
Phacelia heterophylla	6	0.5
Polygonum douglasii	12	0.5
Potentilla glandulosa	81	0.5

Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Mountain Meadow Mosaic.*

Present communities: The present vegetation varies from uniform communities to fine mosaics of the following: subalpine fir/heartleaf arnica h.t., heartleaf arnica phase; subalpine fir/gooseberry currant h.t., whitebark pine phase; Douglas-fir/whortleleaf snowberry h.t.; Douglas-fir/elk sedge community; lodgepole pine/elksedge c.t.; big sagebrush/California brome h.t.; big sagebrush/elk sedge h.t.; communities dominated by native or non-native grasses and mesic forbs; whitebark pine/Idaho fescue h.t. and mountain big sagebrush/Idaho fescue h.t.

Vegetation Composition (N=29)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	48	16.3
Picea engelmannii	6	6.2
Pinus contorta	37	9.2
Populus tremuloides	10	2.8
Pseudotsuga menziesii	34	19.6
Tree d.b.h. < 5 inches		
Abies lasiocarpa	55	7.7
Picea engelmannii	3	1.5
Pinus contorta	13	0.5
Populus tremuloides	10	3.0
Pseudotsuga menziesii	17	2.5
Shrubs		
Amelanchier alnifolia	6	0.7
Artemisia tridentata ssp. spiciformis	6	4.5
Artemisia tridentata ssp. vaseyana	27	18.3
Berberis repens	6	0.5
Juniperus communis	3	1.0
Lonicera utahensis	10	0.6
Ribes lacustre	10	1.2
Ribes montigenum	20	0.6
Ribes viscosissimum	6	0.5
Rosa sp.	3	0.1
Rubus idaeus (ssp. sachalinensis) gracilipes	6	0.3
Rubus parviflorus	3	0.1
Sambucus racemosa	3	2.0
Shepherdia canadensis	6	0.5
Sorbus scopulina	6	0.5
Symphoricarpos oreophilus	51	2.3
Graminoids		
Agropyron sp.	6	0.7
Agropyron (Pascopyrum) smithii	3	0.5
Agropyron (Pseudoroegneria) spicatum	10	0.3
Agropyron trachycaulum	24	0.6
Bromus carinatus	44	1.0
Calamagrostis rubescens	24	2.5
Carex geyeri	58	4.5
Carex hoodii	27	0.9
Carex petasata	3	0.1
Carex raynoldsii	10	2.0
Carex sp.	27	0.7
Carex rossii	24	0.5
Danthonia intermedia	13	0.2
Danthonia sp.	3	0.5
Elymus glaucus	6	5.5
Festuca idahoensis	37	6.5
Festuca sp.	3	0.1
Hesperochloa kingii	3	6.0
Koeleria nitida (cristata) (macrantha)	3	0.5
Melica bulbosa	10	0.8
Melica spectabilis	20	7.2
Phleum alpinum	27	0.5
Phleum pratense	6	0.5
Poa compressa	6	0.5
Poa fendleriana	3	20.0
Poa nervosa	34	0.4
Poa nervosa var. wheeleri	10	1.5
Poa palustris	3	0.5
Poa pratensis	10	4.5
Poa secunda	3	0.1
Poa sp.	41	1.3
Stipa columbiana	3	0.5
Stipa occidentalis	6	0.5
Trisetum spicatum	62	0.5
Forbs		
Achillea millefolium	62	0.5
Agoseris glauca	51	0.7
Agastache urticifolia	3	1.0
Antennaria lanata	3	0.5
Antennaria luzuloides	17	0.6
Antennaria microphylla	37	0.2
Androsace septentrionalis	17	0.4
Antennaria sp.	3	0.5
Antennaria umbrinella	3	2.0

Potentilla gracilis	12	0.5
Polygonum sp.	6	0.5
Pterospora andromedea	6	0.5
Pyrola secunda	18	0.5
Ranunculus uncinatus	18	0.5
Rudbeckia occidentalis	6	0.5
Senecio sp.	6	0.5
Senecio serra	25	2.8
Smilacina racemosa	56	1.0
Smilacina stellata	6	0.5
Solidago missouriensis	6	0.5
Stellaria americana	6	0.5
Taraxacum officinale	37	0.5
Thalictrum occidentale	87	4.2
Trifolium arvense	6	1.0
Tragopogon dubius	12	0.5
Triteleia grandiflora	6	0.5
Valeriana occidentalis	50	0.6
Viola nuttallii	43	0.5
Viola sp.	6	1.0
Wyethia amplexicaulis	6	0.5

Soil
The soils of this ecological type are represented by the Fitzwil series, warm phase.

Taxonomic class: Loamy-skeletal, mixed Cryic Paleborolls

Typical pedon description
Fitzwil gravelly silt loam, supporting a subalpine fir/pinegrass habitat type, pinegrass phase, woodland; on a 14 percent slope with a south aspect; about 7200 feet elevation. (Colors are for dry soil unless otherwise noted.)

O–1 to 0 inches; forest litter of needles, twigs and stems; abrupt smooth boundary.

A1–0 to 7 inches; dark grayish brown (10YR 4/2) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft very friable, slightly sticky and slightly plastic; many very fine, few fine, medium and coarse roots; many very fine irregular pores; 15 percent pebbles; slightly acid (pH 6.4); abrupt smooth boundary.

A2–7 to 14 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, few fine, medium and coarse roots; many very fine irregular pores; 20 percent pebbles, trace cobbles and stones; slightly acid (pH 6.2); clear smooth boundary.

E–14 to 27 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; common very fine, few fine and medium roots; common very fine tubular pores; few faint streaks and stains of B material and few fine (less than 5 mm) distinct lamellae; 40 percent pebbles, 5 percent cobbles, trace stones; slightly acid (pH 6.2); clear irregular boundary.

B/E1–27 to 36 inches; 40 percent light yellowish brown (10YR 6/4) B material, yellowish brown (10YR 5/4) moist and 40 percent very pale brown (10YR 7/3) E material, brown (10YR 5/3) moist in a fine to medium (less than 15 mm) irregular matrix that mixes to a very gravelly loam; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; common distinct clay films on ped faces, on rock fragments and lining pores; 40 percent pebbles, 15 percent cobbles, trace stones; moderately acid (pH 5.6); gradual wavy boundary.

B/E2–36 to 50 inches; 50 percent light yellowish brown (10YR 6/4) B material, yellowish brown (10YR 5/4) moist and 50 percent white (10YR 8/2) E material, light brownish gray (10YR 6/2) moist in a fine to medium (less than 15 mm) irregular matrix that mixes to an extremely cobbly loam; weak medium subangular blocky structure parting to weak very fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and common fine tubular pores; common distinct clay films on ped faces, on rock fragments and lining pores; few fine (less than 5 mm) distinct lamellae; 15 percent pebbles, 40 percent cobbles, 5 percent stones; moderately acid (pH 5.8); clear smooth boundary.

B/E3–50 to 60 inches; 50 percent light yellowish brown (10YR 6/4) B material, yellowish brown (10YR 4/4) moist and 50 percent white (10YR 8/2) E material, light brownish gray (10YR 6/2) moist in a fine to medium (less than 15 mm) irregular matrix that mixes to an extremely cobbly loam; weak coarse subangular blocky structure

parting to moderate very fine subangular blocky (B material) and weak very fine subangular blocky (E material); slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and few fine tubular pores; few distinct clay films on ped faces, on rock fragments and lining pores; 20 percent pebbles, 35 percent cobbles, 10 percent stones; moderately acid (pH 5.6).

Typical pedon location
Legal description: about 2300 feet south and 1200 feet west of the northeast corner of sec. 28, T.14 N., R.41 E., ID.
Latitude: 44 degrees, 30 minutes, 41 seconds north.
Longitude: 111 degrees, 37 minutes, 23 seconds west.
Map unit in which located: 1150

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 20 inches
Depth to argillic horizon - 24 to 40 inches
Depth of solum - 40 to greater than 60 inches
Clay in particle-size control section, weighted average - 18 to 27 percent
Rock fragments in the particle-size control section - 35 to 70 percent
Reaction - slightly acid to moderately acid

A horizons:
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3

E horizon:
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 2 through 4
Texture, less than 2 mm fraction - loam or silt loam
Rock fragments - 20 to 60 percent

E/B and B/E horizons:
Hue - 7.5YR or 10YR
Value -
E material - 6 to 8 dry, 5 or 6 moist
B material - 5 or 6 dry, 4 or 5 moist
Chroma -
E material - 2 through 4 dry or moist
B material - 3 or 4 dry or moist
Texture, less than 2 mm fraction, mixed - loam or silt loam
Rock fragments - 35 to 80 percent

Bt or BC horizons (when present):
Rock fragments - 35 to 80 percent

ABLA/CARU,CARU Hopburn Ecological Type

This ecological type is named for the occurrence of subalpine fir/pinegrass habitat type, pinegrass phase on Hopburn soils.

Environmental Setting
Landforms: plains
Parent Material: local alluvium derived from loess and coarser eolian materials
Slope range: 1 to 12 percent
Elevation: 6300 to 6800 feet
Average annual precipitation: 24 to 30 inches
Average annual temperature: 34 to 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Calamagrostis rubescens* habitat type, *Calamagrostis rubescens* phase.

Present communities: The lodgepole pine/pinegrass c.t. and the quaking aspen-lodgepole pine/elk sedge c.t. are commonly supported.

Vegetation Composition (N=5)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	100	8.9
Populus tremuloides	20	3.0
Tree d.b.h. < 5 inches		
Abies lasiocarpa	40	0.5
Pinus albicaulis	20	0.5
Pinus contorta	100	5.8
Populus tremuloides	80	15.0
Pseudotsuga menziesii	20	0.5
Shrubs		
Arctostaphylos uva-ursi	60	4.8
Artemisia tridentata ssp. vaseyana	40	0.5

Berberis repens	60	1.1
Purshia tridentata	80	0.6
Rosa sp.	20	0.5
Graminoids		
Agropyron trachycaulum	20	0.5
Calamagrostis rubescens	100	21.6
Carex hoodii	40	0.5
Carex petasata	20	0.5
Carex rossii	20	2.0
Danthonia intermedia	40	1.2
Elymus glaucus	20	1.0
Festuca idahoensis	20	0.5
Phleum pratense	20	0.5
Poa sp.	20	0.5
Poa cusickii	20	1.0
Poa nevadensis	40	0.5
Poa nervosa var. wheeleri	20	0.5
Poa pratensis	60	10.3
Unknown grasses w/ >trace cover	20	4.0
Forbs		
Achillea millefolium	80	1.3
Agoseris glauca	40	0.5
Antennaria microphylla	20	1.0
Antennaria sp.	20	5.0
Arabis sp.	20	0.5
Arenaria congesta	20	0.5
Arnica cordifolia	40	1.0
Calochortus eurycarpus	20	0.5
Clematis hirsutissima	20	0.5
Collinsia parviflora	20	0.5
unknown Compositae	20	1.0
Epilobium angustifolium	40	0.7
Eriogonum heracleoides	20	0.5
Eriogonum sp	20	0.5
Eriophyllum lanatum	20	0.5
Frasera speciosa	20	1.0
Geranium viscosissimum	40	2.5
Heuchera sp.	20	0.5
Hieracium albiflorum	20	0.5
Hieracium sp.	20	0.5
Lupinus argenteus	60	8.3
Lupinus sericeus	20	6.0
Microsteris gracilis	20	0.5
Osmorhiza chilensis	20	0.5
Perideridia gairdneri	20	0.5
Penstemon procerus	20	0.5
Penstemon sp.	20	0.5
Phacelia hastata	20	0.5
Phlox longifolia	20	0.5
Potentilla gracilis	40	0.5
Potentilla sp.	20	1.0
Taraxacum officinale	40	1.2
unknown forbs (may be more than one sp.)	40	2.5

Soil

The soils of this ecological type are represented by the Hopburn series.

Taxonomic class: Fine-loamy, mixed Typic Cryoboralfs

Typical pedon description

Hopburn silt loam; supporting a lodgepole pine/pinegrass community type, woodland; on an undulating slope of 3 percent with a south aspect at 6450 feet elevation. (Color is for air dry soil unless otherwise noted.)

O -- 1/2 to 0 inches; forest litter of needles and grass leaves; abrupt smooth boundary.

A -- 0 to 3 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak very fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine roots; many very fine irregular pores; strongly acid (pH 5.4); abrupt smooth boundary.

E1 -- 3 to 11 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; moderate coarse subangular blocky structure; hard, very friable, nonsticky and slightly plastic; many very fine and few fine, medium and coarse roots; many very fine tubular pores; trace stones; moderately acid (pH 6.0); clear smooth boundary.

E2 -- 11 to 21 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; moderate very coarse subangular blocky structure; hard, very friable, nonsticky and slightly plastic; many very fine, few medium and coarse roots; many very fine tubular pores; trace stones; slightly acid (pH 6.4); clear smooth boundary.

Bt1 -- 21 to 34 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; strong coarse subangular blocky structure parting to strong medium subangular blocky; hard, friable, sticky and plastic; few very fine and medium roots; few very fine tubular pores; continuous distinct uncoated silt grains on faces of coarse peds and many distinct uncoated silt grains on faces of medium peds, faint moist; few faint clay films on faces of medium peds and lining pores; trace pebbles and stones; neutral (pH 6.8); clear smooth boundary.

Bt2 – 34 to 45 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; strong very coarse subangular blocky structure; hard, friable, sticky and plastic; few very fine roots; many very fine and common fine tubular pores; few faint uncoated silt grains on faces of peds; few faint clay films on faces of peds and lining pores; trace pebbles and stones; neutral (pH 7.0); clear smooth boundary.

BC – 45 to 52 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; weak very coarse prismatic structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine and few fine tubular pores; common faint uncoated silt grains on faces of peds faces; trace pebbles and stones; neutral (pH 7.0); clear smooth boundary.

C – 52 to 70 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; massive; hard, very friable, slightly sticky and slightly plastic; common very fine and few fine tubular pores; trace pebbles and stones; neutral (pH 7.0).

Typical pedon location
Legal description: about 1100 feet north and 500 feet west of the southeast corner of section 5, T. 12 N., R. 41 E., ID.
Latitude: 44 degrees, 23 minutes, 36 seconds north.
Longitude: 111 degrees, 38 minutes, 19 seconds west.
Map Unit in which located: 1123

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Ochric epipedon thickness - 12 to 24 inches
Depth to argillic horizon - 12 to 24 inches
Depth of solum - 40 to greater than 60 inches
Depth to bedrock - greater than 60 inches
Rock fragments - 0 to 15 percent
Clay in particle size control section, weighted average - 18 to 24 percent

A horizon
Value - 4 to 6 dry; 2 to 4 moist
Chroma - 2 or 3 dry or moist
Reaction - strongly acid to slightly acid

E horizons
Value - 6 or 7 dry, 4 or 5 moist
Texture - silt loam, loam or very fine sandy loam
Reaction - moderately acid to neutral

Bt horizons
Value - 5 or 6 dry, 4 or 5 moist
Chroma - 3 or 4 dry or moist
Texture - loam, sandy clay loam, or fine sandy loam
Reaction - slightly acid or neutral
Other - Thickness of uncoated silt grains or silt coats between abutting peds is less than 2 mm.

BC horizon
Value - 5 to 7 dry, 4 to 6 moist
Chroma - 3 or 4 dry or moist
Texture - loam, fine sandy loam or very fine sandy loam
Reaction - slightly acid or neutral

ABLA/CARU,CARU Koffgo, warm Ecological Type

This ecological type is named for the occurrence of subalpine fir/pinegrass habitat type, pinegrass phase on Koffgo, warm soils.

Environmental Setting
Landforms: foothills, mountains, escarpments of plateaus, dissected tablelands and volcanic domes
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 30 to 60 percent
Elevation: 6200 to 7200 feet
Average annual precipitation: 22 to 32 inches
Average annual temperature: 35 to 39 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Calamagrostis rubescens* habitat type, *Calamagrostis rubescens* phase.

Present communities: The lodgepole pine/pinegrass c.t. are supported in lightly or nondisturbed areas. Communities dominated by elk sedge or snowbrush ceanothus are supported in recent clearcut and scarified areas.

Vegetation Composition (N=11)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	18	2.0
Pinus contorta	81	4.5
Pseudotsuga menziesii	54	10.0
Tree d.b.h. < 5 inches		
Abies lasiocarpa	45	0.8
Pinus albicaulis	9	1.0
Pinus contorta	100	4.2
Populus tremuloides	36	5.8
Pseudotsuga menziesii	81	3.1
Shrubs		
Amelanchier alnifolia	36	0.6
Arctostaphylos uva-ursi	9	0.5
Artemisia tridentata ssp. vaseyana	9	1.0
Berberis repens	18	0.7
Ceanothus velutinus	9	0.5
Lonicera utahensis	72	0.9
Prunus virginiana ssp. melanocarpa	9	1.0
Ribes viscosissimum	9	0.5
Rubus parviflorus	9	0.5
Sorbus scopulina	27	0.6
Spiraea betulifolia	72	2.1
Symphoricarpos albus	18	2.0
Symphoricarpos oreophilus	45	1.6
Vaccinium globulare	18	0.5
Vaccinium scoparium	27	1.3
Graminoids		
Agrostis scabra	9	0.5
Agropyron trachycaulum	9	0.5
Bromus carinatus	27	1.3
Bromus sp.	9	0.5
Calamagrostis rubescens	100	14.0
Carex geyeri	100	14.7
Carex rossii	27	1.1
Danthonia sp.	9	0.5
Elymus glaucus	36	1.0
Melica bulbosa	18	0.5
Poa sp.	27	0.5
Poa nervosa var. wheeleri	18	0.7
Stipa sp.	9	0.5
Trisetum spicatum	9	0.5
Forbs		
Achillea millefolium	63	0.8
Agoseris glauca	9	0.5
Antennaria microphylla	18	0.5
Arabis sp.	9	0.5
Arnica cordifolia	63	2.0
Arnica parryi	9	1.0
Aster conspicuus	9	0.5
Aster engelmannii	27	1.6
Aster integrifolius	9	1.0
Campanula rotundifolia	9	0.5
Castilleja sp.	27	0.5
unknown Compositae	18	0.7
Corallorhiza maculata	9	0.5
Corallorhiza sp.	9	0.5
unknown Cruciferae	9	0.5
Delphinium sp.	9	0.5
Epilobium angustifolium	90	1.6
Epilobium sp.	9	2.0
Erigeron peregrinus	9	2.0
Erigeron sp.	9	2.0
Eriophyllum lanatum	9	0.5
Erythronium grandiflorum	9	1.0
unknown forbs (may be more than one sp.)	18	1.2
Fragaria virginiana	27	0.8
Geranium viscosissimum	45	2.6
Habenaria (Piperia) unalascensis	9	0.5
Hieracium albertinum (cynoglossoides)	18	0.5
Hieracium albiflorum	27	0.5
Hieracium cynoglossoides	45	0.9
Hieracium sp.	18	1.0
Hieracium gracile	9	0.5
Hydrophyllum capitatum	9	0.5
Lupinus argenteus	81	1.2
Lupinus sp.	9	2.0
Microsteris gracilis	9	2.0
Osmorhiza chilensis	45	0.9
Pedicularis bracteosa	27	2.3
Perideridia gairdneri	27	0.6
Penstemon montanus var. idahoensis	9	0.5
Pedicularis racemosa	18	0.5
Potentilla glandulosa	18	0.5
Potentilla sp.	18	1.0
Pyrola dentata	9	0.5
Senecio dimorphophyllus	9	0.5
Senecio sp.	9	0.5
Solidago sp.	9	0.5
Stellaria americana	9	0.5
Taraxacum officinale	9	0.5
Thalictrum occidentale	45	4.6
Tragopogon dubius	9	0.5

Soil

The soils of this ecological type are represented by the Koffgo series, warm phase.

Taxonomic class: Loamy-skeletal, mixed Dystric

Cryochrepts

Typical pedon description
Koffgo gravelly silt loam, supporting a lodgepole pine/pinegrass, pinegrass phase community type; on a 18 percent southwest facing slope; about 7350 feet elevation. (Colors are for dry soil unless otherwise stated.)

O--1/2 to 0 inches; Forest litter; needles, twigs and an elk sedge root mat.

A1--0 to 3 inches; dark grayish brown (10YR 4/2) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine, few fine and medium roots; many very fine irregular pores; 15 percent pebbles, trace cobbles and stones; moderately acid (pH 6.0); abrupt smooth boundary.

A2--3 to 12 inches; palebrown (10YR6/3) gravelly loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine, few fine and medium roots; many very fine irregular pores; 20 percent pebbles, 10 percent cobbles and trace stones; moderately acid (pH 5.8); clear smooth boundary.

Bw--12 to 25 inches; light gray (10YR 7/2) very cobbly sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine, few fine and medium roots; many very fine tubular pores; 20 percent pebbles, 30 percent cobbles and 10 percent stones; moderately acid (pH 5.8); clear smooth boundary.

2BC--25 to 38 inches; light gray (10YR 7/2) very gravelly sandy loam, light brownish gray (10YR 6/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and medium roots; 40 percent pebbles, 10 percent cobbles and trace percent stones; moderately acid (pH 6.0); clear smooth boundary.

2C--38 to 60 inches; white (10YR 8/1) extremely gravelly loamy sand, light brownish gray (2.5Y 6/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine irregular pores; 70 percent pebbles.

Typical pedon location
Legal description: about 800 feet south and 2000 feet west of the northeast corner of section 34, T. 12 N., R. 41 E., ID.
Latitude: 44 degrees, 19 minutes, 48 seconds north
Longitude: 111 degrees, 36 minutes, 13 seconds west.
Map unit in which located: 1575

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Ochric epipedon thickness - 2 to 14 inches
Depth to base of cambic horizon - 15 to 40 inches
Depth to fragmental material - 40 to greater than 60 inches
Clay content of the particle size control section - 7 to 14 percent
Base saturation - 5 to 60 percent

A horizons -
Value: 4 to 6 dry; 2 to 4 moist
Chroma: 1 to 3 dry and moist
Pebbles - 0 to 35 percent
Cobbles - 0 to 10 percent
Stones or boulders - 0 to 5 percent
Reaction - strongly acid or moderately acid

Bw and BC horizons -
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 2 to 4 dry and moist
Texture, less than 2 mm - loam, sandy loam, or silt loam
Rock fragments - 20 to 90 percent
Pebbles - 5 to 60 percent
Cobbles - 10 to 50 percent
Stones or boulders - 0 to 40 percent
Reaction - moderately acid or slightly acid

C1 horizon -
Hue - 10YR, 2.5Y or 5Y
Value - 6 or 8 dry, 5 or 6 moist
Chroma - 1 to 3 dry and moist
Rock fragments - 50 to 90 percent
Pebbles - 5 to 40 percent
Cobbles - 0 to 65 percent
Stones or boulders - 10 to 85 percent
Reaction - moderately acid to neutral

ABLA/CARU,CARU Rhylow, warm Ecological Type

This ecological type is named for the occurrence of subalpine fir/pinegrass habitat type, pinegrass phase on Rhylow, warm soils.

Environmental Setting
Landforms: foothills and mountains
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 15 to 40 percent
Elevation: 6500 to 8000 feet
Average annual precipitation: 25 to 35 inches
Average annual temperature: 30 to 40 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Calamagrostis rubescens* habitat type, *Calamagrostis rubescens* phase.

Present communities: The Douglas-fir/pinegrass, Douglas-fir/whortleleaf snowberry and subalpine fir/big sagebrush/mountain brome communities are supported on lightly or nondisturbed areas. The Douglas-fir/non-native grass community is supported on selectively cut and seeded areas. Communities dominated by snowbrush ceanothus, white spirea or elk sedge are supported on clearcut and scarified areas.

Vegetation Composition (N=10)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	40	7.7
Pinus contorta	10	2.0
Pinus flexilis	10	1.0
Pseudotsuga menziesii	100	19.6
Tree d.b.h. < 5 inches		
Abies lasiocarpa	80	2.8
Picea engelmannii	10	0.5
Pinus albicaulis	20	0.5
Pinus contorta	10	0.5
Pinus flexilis	10	0.5
Pseudotsuga menziesii	90	3.2
Shrubs		
Amelanchier alnifolia	30	0.5
Berberis repens	70	0.9
Lonicera involucrata	10	0.5
Lonicera utahensis	40	1.7
Prunus virginiana ssp. melanocarpa	20	1.2
Ribes lacustre	10	0.5
Ribes sp.	10	0.5
Ribes viscosissimum	30	0.6
Rosa sp.	10	0.5
Rubus parviflorus	20	0.5
Sorbus scopulina	40	0.6
Spiraea betulifolia	40	1.6
Symphoricarpos albus	10	1.0
Symphoricarpos oreophilus	70	2.9
Vaccinium globulare	10	3.0
Graminoids		
Agropyron intermedium	10	1.0
Agropyron (Pseudoroegneria) spicatum	20	0.5
Bromus carinatus	30	0.8
Bromus sp.	30	0.5
Calamagrostis rubescens	100	10.8
Carex filifolia	10	0.5
Carex geyeri	40	10.0
Carex rossii	10	0.5
Carex sp.	10	1.0
Dactylis glomerata	10	0.5
Elymus glaucus	20	0.5
Elymus sp.	10	0.5
Melica spectabilis	10	0.5
Poa nervosa var. wheeleri	20	0.5
Poa pratensis	10	3.0
Poa sp.	50	0.9
Stipa columbiana	10	0.5
Trisetum spicatum	30	2.0
Forbs		
Achillea millefolium	60	0.5
Agastache urticifolia	30	0.5
Agoseris sp.	10	0.5
Antennaria racemosa	10	0.5
Apocynum androsaemifolium	10	0.5
Aquilegia flavescens	20	0.5
Arnica cordifolia	90	4.9
Arabis holboellii	10	0.5
Arabis sp.	10	0.5
Aster conspicuus	10	0.5
Aster engelmannii	30	0.8
Aster occidentalis	20	0.7
Aster perelegans	10	0.5
Aster sp.	10	0.5
Balsamorhiza sagittata	20	0.5

Calypso bulbosa	10	0.5
unknown Compositae	10	3.0
Corallorhiza maculata	10	0.5
Corallorhiza striata	10	0.5
Corallorhiza wisteriana	10	0.5
Delphinium nuttallianum	10	0.5
Epilobium angustifolium	30	0.5
Epilobium sp.	20	0.7
Erigeron sp.	10	0.5
Eriogonum sp	10	0.5
Erigeron peregrinus	10	1.0
Erythronium grandiflorum	30	1.0
Fragaria sp.	10	0.5
Fragaria vesca	50	0.9
Fritillaria atropurpurea	30	0.5
Galium bifolium	10	0.5
Galium boreale	10	0.5
Geranium sp.	10	0.5
Geranium viscosissimum	70	0.5
Goodyera oblongifolia	10	0.5
Hackelia micrantha (jessicae)	30	0.5
Hackelia sp.	20	0.5
Helianthella uniflora	10	0.5
Hieracium albiflorum	10	0.5
Hieracium cynoglossoides	10	0.5
Hieracium sp.	40	0.5
Hydrophyllum capitatum	40	0.5
Lupinus argenteus	50	0.6
Microsteris gracilis	10	2.0
Osmorhiza chilensis	60	0.5
Osmorhiza sp.	10	0.5
Osmorhiza occidentalis	10	0.5
Oxytropis campestris	10	7.0
Pedicularis racemosa	10	1.0
Penstemon sp.	10	0.5
Perideridia gairdneri	20	0.5
Phacelia sericiea	10	0.5
Polygonum douglasii	10	0.5
Potentilla glandulosa	70	0.5
Potentilla gracilis	20	0.5
Pyrola chlorantha	10	0.5
Pyrola secunda	10	0.5
Senecio serra	10	0.5
Silene sp.	10	0.5
Smilacina racemosa	40	0.5
Stellaria americana	10	0.5
Stellaria (Pseudostellaria) jamesiana	10	0.5
Taraxacum officinale	50	0.5
Thalictrum occidentale	80	4.8
Valeriana occidentalis	30	0.5
Viola nuttallii	40	0.5
Viola sp.	30	0.5

Soil
The soils of this ecological type are represented by the Rhylow series, warm phase.

Taxonomic class: Loamy-skeletal, mixed Typic Cryumbrepts

Typical pedon description
Rhylow gravelly loam, supporting a Douglas-fir/whortleleaf snowberry c.t., woodland; on a southwest slope of 35 percent; about 7300 feet elevation. (Colors are for air dry soil unless otherwise noted.)

O – 1 to 0 inches; forest litter of needles and leaves; abrupt broken boundary.

A1 – 0 to 4 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine, few medium roots; many very fine irregular pores; 15 percent pebbles; neutral (pH 6.6); clear smooth boundary.

A2 – 4 to 12 inches; brown (10YR 5/3) gravelly silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine, few medium roots; many very fine irregular pores; 20 percent pebbles; slightly acid (pH 6.4); gradual smooth boundary.

Bw1 – 12 to 20 inches; brown (10YR 5/3) gravelly silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine, few fine and medium roots; many very fine irregular pores; 20 percent pebbles; slightly acid (pH 6.4); clear wavy boundary.

Bw2–20 to 31 inches; pale brown (10YR 6/3) gravelly silt loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine irregular and few fine tubular pores; 25 percent pebbles; silghtly acid (pH 6.4); gradual smooth boundary.

2BC – 31 to 44 inches; very pale brown (10YR 7/3) very cobbly sandy loam, yellowish brown (10YR 5/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine irregular pores; 20 percent pebbles, 30 percent cobbles, and 5 percent stones; moderately acid (pH 5.8); gradual smooth boundary.

2C – 44 to 60 inches; very pale brown (10YR 7/3) extremely stony sandy loam, grayish (10YR 5/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many very fine irregular pores; 20 percent pebbles, 30 percent cobbles, 30 percent stones; moderately acid (pH 5.8).

Typical pedon location
Legal description: about 1450 feet east and 4250 feet north of the southwest corner of section 35, T. 14 N., R. 42 E., ID.
Latitude: 44 degrees, 29 minutes, 59 seconds north.
Longitude: 111 degrees, 28 minutes, 20 seconds west.
Map unit in which located: 1150

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Umbric epipedon thickness - 10 to 20 inches
Depth to very or extremely cobbly, flaggy or stony textures - 20 to 40 inches
Depth of solum - 40 to greater than 60 inches
Clay in particle size control section - 5 to 18 percent
Rock fragments in particle size control section, weighted average -35 to 60 percent
Reaction - moderately acid to slightly acid
Base saturation - 30 to 50 percent

O horizon:
Thickness - 1/2 to 2 inches thick
Form - Commonly forest litter of leaves, needles and stems on lightly or undisturbed pedons. On pedons where recent, heavy mechanical disturbance has occurred a root mat of pinegrass, elk sedge or both is common.

A horizons:
Hue - 10YR or 7.5YR
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3
Acid oxalate extractable Al plus 1/2 Fe - 0.2 to 0.8 percent
Volcanic glass in the 0.02 to 2.0 mm fraction - less than 5 percent

Bw horizons:
Hue - 10YR or 2.5Y
Value - 5 or 6 dry, 3 or 4 moist
Chroma - 3 or 4
Texture, less than 2 mm fraction - loam or sandy loam
Rock fragments - 15 to 60 percent, dominantly pebbles
Acid oxalate extractable Al plus 1/2 Fe - 0.1 to 0.6 percent
Volcanic glass in the 0.02 to 2.0 mm fraction - less than 5 percent

2BC horizons:
Hue - 10YR or 2.5Y
Value - 5, 6 or 7 dry; 4, 5 or 6 moist
Chroma - 2, 3 or 4
Texture, less than 2 mm fraction - sandy loam or loam
Rock fragments - 40 to 80 percent, dominantly cobbles, flagstones or stones
Acid oxalate extractable Al plus 1/2 Fe - less than 0.4 percent
Volcanic glass in the 0.02 to 2.0 mm fraction - less than 5 percent

2C horizon:
Rock fragments - 80 to 90 percent, dominantly cobbles, flagstones or stones.

ABLA/Meadow Mosaic Fitzwil, high elevation Ecological Type

This ecological type is named for the occurrence of subalpine fir/mountain meadow mosaic on Fitzwil, high elevation soils.

Environmental Setting
Landforms: plateaus
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 4 to 25 percent
Elevation: 7100 to 9400 feet
Average annual precipitation: 25 to 30 inches
Average annual temperature: 34 to 38 degrees F.
Temperature regime: cryic

Aquilegia flavescens	6	0.7
Aquilegia formosa	3	0.5
Arabis sp.	27	0.4
Arenaria congesta	24	0.4
Arnica cordifolia	55	2.0
Arabis drummondii	3	0.5
Arenaria sp.	3	0.5
Arnica sp.	10	4.6
Aster engelmannii	13	3.2
Aster foliaceus canbyi	6	0.7
Aster integrifolius	24	7.7
Astragalus miser	27	0.5
Aster occidentalis	3	0.5
Aster sp.	3	0.5
Astragalus sp.	13	0.4
Balsamorhiza sagittata	3	3.0
Besseya wyomingensis	6	0.3
Calochortus eurycarpus	6	0.5
Castilleja miniata	13	0.8
Campanula rotundifolia	6	0.1
Castilleja sp.	6	0.5
Cirsium sp.	3	0.5
Claytonia lanceolata	6	0.5
Collomia linearis	13	0.7
unknown Compositae	27	0.4
Collinsia parviflora	6	0.5
Delphinium nuttallianum	17	0.5
Delphinium occidentale	10	1.5
Dodecatheon pulchellum	3	0.5
Draba sp.	6	0.5
Epilobium alpinum (anagallidifolium)	3	1.0
Epilobium angustifolium	27	0.4
Epilobium sp.	10	0.3
Erigeron sp.	17	0.4
Erigeron speciosus	10	0.5
Eriogonum heracleoides	3	0.5
Eriogonum umbellatum	27	0.7
Eriophyllum lanatum	6	0.5
Erythronium grandiflorum	13	1.6
Frasera speciosa	3	0.1
Fragaria vesca	17	0.6
Fragaria virginiana	6	0.5
Galium bifolium	3	0.5
Galium triflorum	3	0.5
Geum macrophyllum	3	3.0
Geum triflorum	17	1.1
Geranium sp.	10	3.3
Geranium richardsonii	6	1.2
Geranium viscosissimum	58	2.1
Hackelia sp.	3	1.0
Hackelia floribunda	3	1.0
Hackelia micrantha (jessicae)	17	0.9
Haplopappus (Stenotus) stenophyllus	3	0.5
Helianthella uniflora	17	3.4
Hieracium albertinum (cynoglossoides)	3	3.0
Hieracium sp.	20	0.5
Hydrophyllum capitatum	24	0.5
Ivesia tweedyii	6	0.5
Lithophragma bulbifera (glabrum)	6	0.5
Lithophragma parviflorum	3	0.5
Lithophragma tenellum	3	0.5
Lithophragma sp.	3	0.5
Lomatium ambiguum	13	1.6
Lomatium sp.	13	0.8
Lupinus argenteus	34	0.4
Lupinus lepidus	6	0.3
Lupinus sp.	20	0.5
Mertensia viridis (lanceolata var. nivalis)	3	0.5
Microsteris gracilis	24	0.5
Mitella stauropetala	3	0.5
Nemophila parviflora	10	0.5
Osmorhiza chilensis	27	0.8
Osmorhiza occidentalis	20	1.0
Pedicularis bracteosa	10	0.8
Perideridia gairdneri	34	0.3
Penstemon sp.	10	0.3
Pedicularis racemosa	17	0.8
Perideridia sp.	3	0.5
Phlox longifolia	3	0.5
Phlox sp.	3	0.5
Phlox multiflora	6	0.3
Potentilla arguta	6	4.5
Polygonum bistortoides	17	0.4
Potentilla diversifolia	6	0.3
Polygonum douglasii	17	1.2
Potentilla glandulosa	48	0.6
Potentilla gracilis	41	0.6
Polygonum sp.	6	0.5
Pyrola picta	3	0.5
Pyrola secunda	17	0.5
Ranunculus uncinatus	6	0.5
Rumex paucifolius	17	0.8
Sedum sp.	6	0.5
Senecio dimorphophyllus	10	0.3
Senecio integerrimus	3	0.5
Sedum lanceolatum	6	0.1
Senecio sp.	6	0.5
Senecio serra	27	1.0
Senecio streptanthifolius var. brevifolius	13	0.2
Silene sp.	3	0.1
Silene oregana	3	0.5

Smilacina racemosa	6	1.2
Solidago multiradiata	17	0.4
Taraxacum officinale	37	0.4
Thalictrum occidentale	31	6.3
Trifolium sp.	3	2.0
unknown forbs w/ > trace cover	3	3.0
Valeriana acutiloba	6	0.1
Valeriana occidentalis	20	0.9
Viola nuttallii	6	0.5
Viola sp.	20	0.3
Wyethia helianthoides	3	3.0
Zigadenus venenosus	3	0.5
Snow	6	7.7

Soil
The soils of this ecological type are represented by the Fitzwil series, high elevation phase.

Taxonomic class: Loamy-skeletal, mixed Cryic Paleborolls

Typical pedon description
Fitzwil gravelly silt loam, supporting a Douglas-fir/whortleleaf snowberry habitat type, woodland; on a 16 percent slope with a south aspect; about 8180 feet elevation. (Colors are for dry soil unless otherwise noted.)

O–1 to 0 inches; forest litter of needles, twigs and leaves; discontinuous boundary.

A1–0 to 2 inches; dark grayish brown (10YR 4/2) gravelly silt loam, very dark brown (10YR 2/2) moist; weak coarse platy structure; hard, very friable, nonsticky and slightly plastic; many very fine roots; many very fine irregular and few very fine tubular pores; 20 percent pebbles, trace cobbles; moderately acid (pH 6.0); abrupt smooth boundary.

A2–2 to 9 inches; dark grayish brown (10YR 4/2) gravelly silt loam, very dark brown (10YR 2/2) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine, few fine and medium roots; many very fine and few fine tubular pores; 20 percent pebbles, trace cobbles; moderately acid (pH 6.0); abrupt smooth boundary.

A3–9 to 14 inches; brown (10YR 5/3) very gravelly silt loam, dark brown (10YR 3/3) moist; few medium subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine, common medium and few fine and coarse roots; common very fine tubular pores; 50 percent pebbles, trace cobbles and stones; moderately acid (pH 6.0); abrupt smooth boundary.

E–14 to 19 inches; very pale brown (10YR 7/3) extremely gravelly loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine, few fine and medium roots; common very fine tubular pores; few faint streaks and stains of B material; 55 percent pebbles, 10 percent cobbles, trace stones; moderately acid (pH 6.0); clear smooth boundary.

2B/E1–19 to 33 inches; 50 percent yellowish brown (10YR 5/4) B material, dark yellowish brown (10YR 4/4) moist and 50 percent very pale brown (10YR 7/4) E material, yellowish brown (10YR 5/4) moist; E material occurs as 2 to 5 mm coats on ped faces; mixes to a extremely gravelly loam; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, few fine and medium roots; many very fine tubular pores; common distinct (7.5YR 4/4) clay films on ped faces and lining pores; 60 percent pebbles, 20 percent cobbles, trace stones; moderately acid (pH 5.8); gradual smooth boundary.

2B/E2–33 to 60 inches; 90 percent yellowish brown (10YR 5/4) B material, dark yellowish brown (10YR 4/4) moist and 10 percent very pale brown (10YR 7/4) E material, yellowish brown (10YR 5/4) moist; E material occurs as uncoated silt grainsto coats 5 mm thick on ped faces and on rock fragments; mixes to a extremely gravelly sandy clay loam; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine, few fine and medium roots; many very fine tubular pores; common distinct (7.5YR 4/6) clay films on ped faces, on rock fragments and lining pores; 60 percent pebbles, 20 percent cobbles, trace percent stones; moderately acid (pH 5.8).

Typical pedon location
Legal description: about 1350 feet west and 1800 feet south of the northeast corner of sec. 10, T.12 N., R.35 E., ID.
Latitude: 44 degrees, 23 minutes, 11 seconds

north.
Longitude: 111 degrees, 19 minutes, 2 seconds west.
Map unit in which located: 1576

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 20 inches
Depth to argillic horizon - 24 to 40 inches
Depth of solum - 40 to greater than 60 inches
Clay in particle-size control section, weighted average - 18 to 27 percent
Rock fragments in the particle-size control section - 35 to 70 percent
Reaction - slightly acid to moderately acid

A horizons:
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3

E horizon:
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 2 through 4
Texture, less than 2 mm fraction - loam or silt loam
Rock fragments - 20 to 60 percent

E/B and B/E horizons:
Hue - 7.5YR or 10YR
Value -
E material - 6 to 8 dry, 5 or 6 moist
B material - 5 or 6 dry, 4 or 5 moist
Chroma -
E material - 2 through 4 dry or moist
B material - 3 or 4 dry or moist
Texture, less than 2 mm fraction, mixed - loam or silt loam
Rock fragments - 35 to 80 percent

Bt or BC horizons (when present):
Rock fragments - 35 to 80 percent

ABLA/Meadow Mosaic Rhylow, high elevation Ecological Type

This ecological type is named for the occurrence of subalpine fir/mountain meadow mosaic on Rhylow, high elevation soils.

Environmental Setting
Landforms: mountains and escarpments of plateaus
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 25 to 60 percent
Elevation: 7600 to 10000 feet
Average annual precipitation: 25 to 35 inches
Average annual temperature: 29 to 39 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Mountain Meadow Mosaic.*

Present communities: The present vegetation varies from uniform communities to a mosaic of the following habitat types and communities: subalpine fir/gooseberry currant h.t., whitebark pine phase; subalpine fir/heartleaf arnica h.t., heartleaf arnica phase; big sagebrush/California brome h.t.; big sagebrush/elk sedge h.t.; and communities dominated by native grasses or mesic forbs. Forested communities occupy west and east facing sideslopes, mosaics occupy south facing sideslopes and meadows occupy snowdrift positions along dominant ridges.

Vegetation Composition (N=25)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	40	15.9
Pinus albicaulis	32	13.5
Pseudotsuga menziesii	8	7.5
Tree d.b.h. < 5 inches		
Abies lasiocarpa	52	9.5
Picea engelmannii	4	0.5
Pinus albicaulis	48	3.1
Populus tremuloides	4	1.0
Pseudotsuga menziesii	4	1.5
Shrubs		
Amelanchier alnifolia	4	0.5
Artemisia tridentata ssp. vaseyana	28	13.9
Berberis repens	4	1.0
Chrysothamnus sp.	4	0.5
Haplopappus suffruticosus	4	0.5
Juniperus communis	4	0.5
Lonicera utahensis	4	0.5
Ribes montigenum	36	3.7

Ribes viscosissimum	4	0.5
Rubus sp.	4	0.5
Rubus parviflorus	4	0.5
Sambucus racemosa	4	0.5
Spiraea betulifolia	4	0.5
Symphoricarpos oreophilus	48	1.6
Graminoids		
Agropyron (Pseudoroegneria) spicatum	4	1.0
Agropyron sp.	4	0.5
Agropyron trachycaulum	48	0.7
Bromus carinatus	48	3.0
Bromus sp.	4	1.0
Calamagrostis rubescens	24	1.7
Carex geyeri	24	7.4
Carex hoodii	32	1.3
Carex microptera	4	0.5
Carex paysonis	4	0.5
Carex petasata	4	0.5
Carex raynoldsii	12	5.8
Carex rossii	28	1.0
Carex sp.	16	0.5
Danthonia intermedia	8	0.5
Elymus glaucus	8	1.7
Festuca idahoensis	24	7.0
Festuca ovina	12	10.3
Koeleria nitida (cristata) (macrantha)	4	0.5
Melica bulbosa	20	8.4
Melica spectabilis	20	4.3
Phleum alpinum	12	0.5
Poa sp.	36	0.5
Poa cusickii	8	7.5
Poa (cusickii) epilis	8	6.0
Poa fendleriana	4	0.5
Poa nervosa	4	1.0
Poa nervosa var. wheeleri	12	1.1
Poa pratensis	8	0.7
Poa reflexa	16	5.3
Poa sandbergii	8	1.0
Poa scabrella	12	1.3
Stipa columbiana	24	1.0
Stipa lettermanii	4	0.5
Stipa pinetorum	4	0.5
Trisetum spicatum	44	1.5
Unknown grasses w/ >trace cover	4	1.0
Forbs		
Achillea millefolium	52	0.8
Agastache urticifolia	24	6.6
Agoseris glauca	44	0.5
Agoseris sp.	4	0.5
Agoseris aurantiaca	4	0.5
Androsace	8	0.5
Antennaria luzuloides	4	0.5
Antennaria microphylla	12	1.8
Antennaria racemosa	8	0.5
Antennaria umbrinella	8	0.7
Aquilegia sp.	12	0.6
Arabis drummondii	12	0.5
Arabis sp.	16	0.5
Arenaria congesta	28	0.5
Arenaria sp.	4	0.5
Arnica cordifolia	32	5.6
Arnica latifolia septentrionalis	8	2.5
Artemisia ludoviciana	8	1.2
Aster conspicuus	12	0.5
Aster engelmannii	20	1.6
Aster foliaceus canbyi	12	0.6
Aster integrifolius	40	7.9
Astragalus miser	12	0.5
Aster occidentalis	16	0.5
Aster perelegans	12	0.8
Aster sp.	4	0.5
Astragalus sp.	12	0.6
Balsamorhiza macrophylla	4	3.0
Balsamorhiza sagittata	20	2.7
Besseya wyomingensis	12	1.0
unknown Boraginaceae	4	0.5
Calochortus eurycarpus	4	0.5
Castilleja miniata	24	0.5
Cirsium sp.	4	0.5
Clematis hirsutissima	8	0.7
Claytonia lanceolata	12	0.5
Collinsia parviflora	16	0.5
Collomia linearis	16	0.5
Comandra umbellata	4	0.5
Corallorhiza maculata	4	0.5
Cryptantha watsonii	4	0.5
Delphinium nuttallianum	28	0.5
Delphinium occidentale	24	1.1
Descurainia sp.	8	0.5
Dodecatheon conjugens	4	0.5
Dodecatheon sp.	4	0.5
Epilobium angustifolium	24	0.5
Epilobium minutum	4	0.5
Epilobium sp.	4	0.5
Erigeron peregrinus	4	2.0
Erigeron speciosus	24	2.6
Erigeron ursinus	4	0.5
Eriogonum sp	4	0.5
Eriogonum heracleoides	16	0.6
Eriogonum umbellatum	24	2.4
Eriophyllum lanatum	24	2.4
Erythronium grandiflorum	16	0.6
Fragaria vesca	4	0.5

Frasera speciosa	8	0.5
Fritillaria atropurpurea	4	0.5
Galium bifolium	8	0.5
Galium boreale	8	0.5
Geranium sp.	12	0.5
Geranium viscosissimum	52	5.0
Geum triflorum	8	0.7
Hackelia micrantha (jessicae)	52	1.6
Haplopappus (Stenotus) stenophyllus	4	0.5
Helianthella uniflora	36	4.4
Heracleum lanatum (maximum)	8	0.7
Hieracium albertinum (cynoglossoides)	4	2.0
Hieracium sp.	8	0.7
Hydrophyllum capitatum	20	0.5
Lewisia sp.	4	0.5
Ligusticum filicinum	40	1.5
Ligusticum sp.	4	0.5
Linum perenne (lewisii)	12	0.5
Lomatium ambiguum	8	0.5
Lomatium triternatum	4	0.5
Lupinus argenteus	48	0.8
Lupinus sericeus	4	0.5
Mertensia oblongifolia	4	7.0
Mertensia viridis (lanceolata var. nivalis)	8	0.5
Microsteris gracilis	28	5.7
Microseris nutans	4	0.5
Nemophila parviflora	8	5.2
Orthocarpus sp.	4	0.5
Osmorhiza chilensis	16	0.5
Osmorhiza occidentalis	32	1.2
Pedicularis bracteosa	4	0.5
Pedicularis racemosa	8	0.5
Penstemon cyaneus	4	0.5
Penstemon sp.	8	0.5
Penstemon rydbergii	16	0.5
Perideridia gairdneri	4	0.5
Phacelia hastata	8	0.5
Phacelia heterophylla	16	0.6
Phacelia sericiea	4	0.5
Phlox longifolia	4	0.5
Phlox multiflora	8	0.7
Phlox sp.	4	0.5
Polygonum bistortoides	12	0.5
Polygonum douglasii	24	0.5
Polygonum sp.	4	0.5
Potentilla arguta	4	0.5
Potentilla glandulosa	32	2.1
Potentilla gracilis	4	0.5
Potentilla recta	8	0.5
Potentilla sp.	4	0.5
Pyrola picta	4	0.5
Pyrola secunda	16	0.5
Ranunculus uncinatus	4	0.5
Rudbeckia occidentalis	4	2.0
Rumex paucifolius	20	0.5
Sedum lanceolatum	8	1.2
Senecio crassulus	52	2.8
Senecio dimorphophyllus	12	0.5
Senecio integerrimus	8	0.7
Senecio serra	12	0.6
Senecio sp.	12	0.5
Silene oregana	12	0.6
Smilacina racemosa	4	0.5
Taraxacum officinale	12	0.5
Thalictrum occidentale	24	5.9
Tragopogon dubius	8	0.5
unknown Umbelliferae	4	0.5
Valeriana acutiloba	12	0.5
Valeriana occidentalis	20	0.6
Viola nuttallii	16	0.6
Viola sp.	12	0.5
unknown forbs w/ > trace cover	4	5.0

Soil

The soils of this ecological type are represented by the Rhylow series, high elevation phase.

Taxonomic class: Loamy-skeletal, mixed Typic Cryumbrepts

Typical pedon description

Rhylow gravelly loam, supporting a subalpine fir/heartleaf arnica h.t. heartleaf arnica phase, woodland; on a 25 percent slope with an east aspect; about 8100 feet elevation. (Colors are for air dry soil unless otherwise noted.)

O–2 to 0 inches; forest litter; needles, twigs, grasses and cones; abrupt smooth boundary.

A1–0 to 7 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (7.5YR 3/2) moist; weak coarse subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine through coarse roots; many very fine irregular pores; 15 percent pebbles; slightly acid (pH 6.5); clear smooth boundary.

A2–7 to 20 inches; brown (7.5YR 4/2) gravelly loam, dark brown (7.5YR 3/3) moist; weak medium and coarse subangular blocky structure;

soft, very friable, slightly sticky and slightly plastic; many very fine and coarse, common fine and medium roots; many very fine irregular and few very fine tubular pores; 15 percent pebbles; moderately acid (pH 5.8); clear smooth boundary.

Bw1--20 to 33 inches; brown (7.5YR 4/3) gravelly loam, dark brown (7.5YR 3/3) moist; moderate coarse subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many very fine, common medium, few fine and coarse roots; common very fine irregular and tubular pores; 15 percent pebbles, 10 percent cobbles; moderately acid (pH 6.0); clear smooth boundary.

Bw2--33 to 37 inches; brown (10YR 5/3) very gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure parting to weak fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine, roots; many very fine tubular and common very fine irregular pores; 30 percent pebbles, 20 percent cobbles, trace stones; moderately acid (pH 5.6).

BC--37 to 60 inches; brown (10YR 5/3) extremely gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure parting to weak fine granular; slightly hard, friable, nonsticky and nonplastic; common very fine and few fine roots; many very fine tubular pores; 60 percent pebbles, 5 percent cobbles; moderately acid (pH 6.0).

Typical pedon location
Legal description: about 1450 feet east and 1250 feet south of the northwest corner of section 17, T. 14 N., R. 43 E., ID.
Latitude: 44 degrees, 32 minutes, 32 seconds north.
Longitude: 111 degrees, 24 minutes, 42 seconds west.
Map unit in which located: 1270

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Umbric epipedon thickness - 10 to 20 inches
Depth to very or extremely cobbly, flaggy or stony textures - 20 to 40 inches
Depth of solum - 40 to greater than 60 inches
Clay in particle size control section - 5 to 18 percent
Rock fragments in particle size control section, weighted average -35 to 60 percent
Reaction - moderately acid to slightly acid
Base saturation - 30 to 50 percent

O horizon:
Thickness - 1/2 to 2 inches thick
Form - Commonly forest litter of leaves, needles and stems on lightly or undisturbed pedons. On pedons where recent, heavy mechanical disturbance has occurred a root mat of pinegrass, elk sedge or both is common.

A horizons:
Hue - 10YR or 7.5YR
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3
Acid oxalate extractable Al plus 1/2 Fe - 0.2 to 0.8 percent
Volcanic glass in the 0.02 to 2.0 mm fraction - less than 5 percent

Bw horizons:
Hue - 10YR, 7.5 YR or 2.5Y
Value - 5 or 6 dry, 3 or 4 moist
Chroma - 3 or 4
Texture, less than 2 mm fraction - loam or sandy loam
Rock fragments - 15 to 60 percent, dominantly pebbles
Acid oxalate extractable Al plus 1/2 Fe - 0.1 to 0.6 percent
Volcanic glass in the 0.02 to 2.0 mm fraction - less than 5 percent

2BC horizons:
Hue - 10YR or 2.5Y
Value - 5, 6 or 7 dry; 4, 5 or 6 moist
Chroma - 2, 3 or 4
Texture, less than 2 mm fraction - sandy loam or loam
Rock fragments - 40 to 80 percent
Acid oxalate extractable Al plus 1/2 Fe - less than 0.4 percent
Volcanic glass in the 0.02 to 2.0 mm fraction - less than 5 percent

ABLA/SPBE2 Koffgo, dry Ecological Type

This ecological type is named for the occurrence of subalpine fir/white spirea habitat type on Koffgo, dry soils.

Environmental Setting

Landforms: foothills and mountains
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 15 to 60 percent
Elevation: 6800 to 8400 feet
Average annual precipitation: 22 to 32 inches
Average annual temperature: 34 to 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Abies lasiocarpa/Spiraea betulifolia* habitat type.

Present communities: The subalpine fir/white spirea h.t., Douglas-fir/white spirea community or communities dominated by Douglas-fir with a depauperate understory are commonly supported.

Vegetation Composition (N=14)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	64	5.7
Pinus contorta	21	6.6
Pinus flexilis	7	3.0
Pseudotsuga menziesii	100	20.1
Tree d.b.h. < 5 inches		
Abies lasiocarpa	57	11.7
Pinus contorta	14	12.0
Pinus flexilis	14	0.5
Populus tremuloides	7	0.5
Pseudotsuga menziesii	85	3.6
Shrubs		
Acer glabrum	57	0.6
Amelanchier alnifolia	28	0.6
Arctostaphylos uva-ursi	7	1.0
Berberis repens	64	0.5
Ceanothus velutinus	7	2.0
Chimaphila umbellata	7	0.5
Clematis columbiana	35	0.6
Juniperus communis	7	0.5
Lonicera utahensis	57	2.1
Prunus virginiana ssp. melanocarpa	21	2.0
Ribes montigenum	7	0.5
Ribes viscosissimum	28	0.5
Rubus parviflorus	57	0.5
Shepherdia canadensis	28	1.7
Sorbus scopulina	14	0.5
Spiraea betulifolia	92	11.6
Symphoricarpos oreophilus	64	2.3
Vaccinium scoparium	7	3.0
Graminoids		
Bromus sp.	7	0.5
Calamagrostis rubescens	85	2.7
Carex geyeri	35	4.4
Carex rossii	14	0.7
Carex sp.	7	0.5
Elymus glaucus	14	0.5
Poa nervosa	14	0.5
Poa nervosa var. wheeleri	21	1.3
Poa pratensis	7	1.0
Poa sp.	14	0.5
Trisetum spicatum	28	0.5
Forbs		
Anaphalis margaritacea	7	1.0
Antennaria microphylla	7	2.0
Antennaria racemosa	50	0.9
Aquilegia flavescens	7	0.5
Aquilegia formosa	14	0.5
Aquilegia sp.	21	0.5
Arnica cordifolia	78	3.2
Aster conspicuus	42	0.9
Aster engelmannii	7	0.5
Aster occidentalis	7	0.5
Aster sp.	7	0.5
Astragalus miser	7	0.5
Calypso bulbosa	7	0.5
Campanula rotundifolia	14	0.5
Castilleja angustifolia	7	0.5
Claytonia lanceolata	7	1.0
Collinsia parviflora	7	0.5
Corallorhiza maculata	7	0.5
Disporum trachycarpum	35	0.5
Epilobium angustifolium	42	0.5
Fragaria sp.	7	0.5
Fragaria vesca	42	0.6
Fritillaria atropurpurea	14	0.5
Galium bifolium	21	0.5
Galium boreale	14	0.5
Geranium viscosissimum	7	0.5
Goodyera oblongifolia	35	0.5
Heuchera sp.	7	0.5
Hieracium albiflorum	21	0.5
Hieracium cynoglossoides	7	0.5

Hieracium sp.	7	0.5
Lupinus argenteus	7	0.5
Mitella stauropetala	7	0.5
Osmorhiza chilensis	64	0.5
Osmorhiza occidentalis	7	1.0
Osmorhiza sp.	7	0.5
Pterospora andromedea	7	0.5
Pyrola chlorantha	7	0.5
Pyrola picta	21	0.5
Pyrola secunda	71	1.4
Rumex sp.	7	0.5
Senecio serra	7	8.0
Senecio sp.	21	1.1
Smilacina racemosa	35	0.8
Stellaria americana	28	0.5
Thalictrum occidentale	78	1.2
Tragopogon dubius	7	0.5
Viola nuttallii	7	0.5

Soil
The soils of this ecological type are represented by the Koffgo series, dry phase.

Taxonomic class: Loamy-skeletal, mixed Dystric Cryochrepts

Typical pedon description
Koffgo silt loam, supporting a subalpine fir/white spirea habitat type woodland; on a 50 percent north facing slope; about 7600 feet elevation. (Colors are for dry soil unless otherwise stated.)

O--2 to 0 inches; Forest litter; needles and fungal hyphae; abrupt smooth boundary.

A--0 to 8 inches; brown (10YR 5/3) very gravelly silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky parting structure to weak very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine through coarse roots; many very fine irregular pores; 35 percent pebbles, 5 percent cobbles, trace stones; strongly acid (pH 5.4); abrupt smooth boundary.

Bw--8 to 25 inches; light brownish gray (10YR 6/2) extremely cobbly sandy loam, grayish brown (10YR 5/2) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine, few fine through coarse roots; many very fine irregular pores; 35 percent pebbles, 40 percent cobbles, trace stones; moderately acid (pH 5.8); diffuse smooth boundary.

BC--25 to 60 inches; pale brown (10YR 6/3) extremely cobbly sandy loam, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine and medium roots; many (10YR 8/2), (10YR 7/2) moist , 1 to 2 mm silt coats on top side of rock fragments; few distinct (7.5YR 5/4), (7.5YR 6/4) moist, clay films on underside of rock fragments; 15 percent pebbles, 60 percent cobbles, 10 percent stones; moderately acid (pH 5.8).

Typical pedon location
Legal description: about 1000 feet south and 600 feet east of the northwest corner of section 19, T. 13 N., R. 38 E., ID.
Latitude: 44 degrees, 26 minutes, 38 seconds north
Longitude: 112 degrees, 2 minutes, 14 seconds west.
Map unit in which located: 1597

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Ochric epipedon thickness - 2 to 14 inches
Depth to base of cambic horizon - 15 to 40 inches
Depth to fragmental material - 40 to greater than 60 inches
Clay content of the particle size control section - 7 to 14 percent
Base saturation - 5 to 60 percent

A horizons -
Value: 4 to 6 dry; 2 to 4 moist
Chroma: 1 to 3 dry and moist
Pebbles - 0 to 35 percent
Cobbles - 0 to 10 percent
Stones or boulders - 0 to 5 percent
Reaction - strongly acid or moderately acid

Bw and BC horizons -
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 2 to 4 dry and moist
Texture, less than 2 mm - loam, sandy loam, or silt loam
Rock fragments - 20 to 90 percent
Pebbles - 5 to 60 percent
Cobbles - 15 to 50 percent
Stones or boulders - 0 to 40 percent
Reaction - moderately acid or slightly acid

C1 horizon -
Hue - 10YR, 2.5Y or 5Y
Value - 6 or 7 dry, 5 or 6 moist
Chroma - 1 to 3 dry and moist
Rock fragments - 50 to 90 percent
Pebbles - 5 to 40 percent
Cobbles - 0 to 65 percent
Stones or boulders - 10 to 85 percent
Reaction - moderately acid to neutral

ABLA/THOC Nearl Ecological Type

This ecological type is named for the occurrence of subalpine fir/western meadowrue habitat type on Nearl soils.

Environmental Setting
Landforms: mountains
Parent Material: local alluvium derived from mixed sources over residuum of fine textured marine sediments
Slope range: 8 to 20 percent
Elevation: 6600 to 7700 feet
Average annual precipitation: 25 to 35 inches
Average annual temperature: 30 to 37 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Thalictrum occidentale* habitat type.

Present communities: The subalpine fir/western meadowrue h.t., big sagebrush/mountain brome c.t. or communities dominated by sticky geranium and bulbous oniongrass are commonly supported.

Vegetation Composition (N=9)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	55	10.2
Picea engelmannii	22	24.5
Pinus contorta	33	1.6
Populus tremuloides	44	14.7
Pseudotsuga menziesii	77	10.8
Tree d.b.h. < 5 inches		
Abies lasiocarpa	44	3.1
Picea engelmannii	22	7.2
Populus tremuloides	44	4.1
Pseudotsuga menziesii	55	1.0
Shrubs		
Amelanchier alnifolia	22	0.7
Berberis repens	22	1.2
Lonicera utahensis	33	0.5
Ribes lacustre	11	3.0
Ribes montigenum	22	0.5
Rosa acicularis	11	0.5
Rosa woodsii	11	0.5
Sambucus racemosa	11	0.5
Shepherdia canadensis	11	0.5
Symphoricarpos oreophilus	88	1.3
Graminoids		
Agropyron sp.	22	1.7
Agropyron (Pseudoroegneria) spicatum	11	0.5
Agropyron trachycaulum	11	0.5
Bromus carinatus	55	2.5
Bromus inermis	11	0.5
Calamagrostis rubescens	66	2.0
Carex disperma	11	1.0
Carex geyeri	11	8.0
Carex raynoldsii	11	0.5
Carex sp.	22	0.5
Dactylis glomerata	11	0.5
Elymus glaucus	77	2.2
Glyceria sp.	11	0.5
Melica bulbosa	11	2.0
Melica spectabilis	55	1.8
Phleum alpinum	22	0.5
Phleum pratense	22	0.7
Poa fendleriana	11	0.5
Poa leptocoma	11	1.0
Poa nervosa	22	0.5
Poa pratensis	33	0.5
Poa sp.	22	1.2
Trisetum spicatum	22	0.7
Forbs		
Achillea millefolium	88	0.5
Agastache urticifolia	33	2.1
Agoseris aurantiaca	11	0.5
Agoseris glauca	11	0.5
Antennaria luzuloides	22	0.5
Antennaria microphylla	22	0.7
Aquilegia flavescens	22	0.5
Aquilegia formosa	33	0.6
Arabis sp.	11	0.5
Arnica cordifolia	88	3.8
Artemisia ludoviciana	22	0.7
Aster engelmannii	77	8.0
Aster integrifolius	22	0.5
Astragalus miser	11	2.0

Astragalus sp.	22	0.5
Balsamorhiza macrophylla	66	7.5
unknown Boraginaceae	11	0.5
Calochortus eurycarpus	11	0.5
Castilleja miniata	11	1.0
Claytonia lanceolata	22	0.5
Corallorhiza maculata	11	0.5
Collinsia parviflora	55	0.6
Delphinium bicolor	22	0.5
Delphinium nuttallianum	11	0.5
Delphinium occidentale	33	1.5
Epilobium angustifolium	33	0.5
Epilobium watsonii parishii	11	0.5
Erythronium grandiflorum	11	1.0
Fritillaria atropurpurea	22	0.5
Fragaria vesca	44	6.0
Fragaria virginiana	11	1.0
Galium bifolium	22	0.5
Galium boreale	11	0.5
Galium triflorum	22	0.5
Geranium viscosissimum	88	3.9
Hackelia sp.	33	4.5
Hackelia micrantha (jessicae)	55	0.6
Habenaria (Piperia) unalascensis	11	0.5
Heracleum lanatum (maximum)	11	0.5
Hieracium albiflorum	22	0.5
Hieracium sp.	11	0.5
Hydrophyllum capitatum	77	0.5
Ligusticum filicinum	44	1.1
Ligusticum sp.	22	2.7
Lithophragma sp.	11	0.5
Lomatium ambiguum	11	0.5
Lupinus argenteus	88	3.3
Microsteris gracilis	44	0.5
Nemophila breviflora	11	3.0
Nemophila parviflora	44	0.7
Orabanch uniflora var. minuta	11	0.5
Osmorhiza chilensis	77	0.8
Osmorhiza occidentalis	66	2.2
Oxytropis campestris	11	0.5
Pedicularis bracteosa	33	0.5
Perideridia gairdneri	100	0.6
Pedicularis racemosa	11	2.0
Polygonum douglasii	22	0.5
Potentilla glandulosa	88	0.6
Potentilla gracilis	55	0.6
Potentilla recta	22	1.0
Pyrola picta	22	0.7
Ranunculus uncinatus	55	0.6
Rudbeckia occidentalis	66	0.9
Rumex paucifolius	22	0.5
Senecio crassulus	11	0.5
Senecio integerrimus	11	3.0
Senecio sp.	22	0.5
Senecio serra	66	0.5
Smilacina racemosa	33	0.6
Stellaria americana	44	0.5
Taraxacum officinale	77	0.7
Thalictrum fendleri	11	2.0
Thalictrum occidentale	88	9.0
Trifolium arvense	11	0.5
Tragopogon dubius	11	0.5
Trifolium sp.	22	0.5
Valeriana occidentalis	100	0.9
Viola nuttallii	66	0.5
Viola sp.	22	0.5
Wyethia amplexicaulis	11	2.0
Wyethia helianthoides	11	2.0

Soil

The soils of this ecological type are represented by the Nearl series.

Taxonomic class: Fine, montmorillonitic Vertic Cryoborolls

Typical pedon description

Nearl loam, supporting a subalpine fir/western meadowrue habitat type, woodland; on a rolling slope of 15 percent on a south aspect, about 6915 feet elevation. (Colors are for air dry soil unless otherwise noted.)

O -- 2 to 0 inches; forest litter of needles and leaves; abrupt broken boundary.

A1 -- 0 to 4 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure parting to moderate very fine granular; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine, common medium and coarse roots; many very fine irregular pores; 5 percent pebbles, trace cobbles and stones; slightly acid (pH 6.2); abrupt wavy boundary.

A2 -- 4 to 10 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure parting to moderate fine subangular blocky; hard, friable, sticky and plastic; common very fine and fine, few medium and coarse roots; many very fine and few fine irregular pores; 5 percent pebbles, trace cobbles

and stones; slightly acid (pH 6.2); abrupt irregular boundary.

Bw1 -- 10 to 21 inches; light yellowish brown (10YR 6/4) cobbly clay loam, yellowish brown (10YR 5/4) moist; moderate medium prismatic structure parting to strong fine subangular blocky; hard, firm, sticky and plastic; few very fine, fine, medium and coarse roots; common very fine tubular pores; many fine faint (10YR 7-8/2) clay depletions on ped faces, (10YR 5/3) moist; 10 percent pebbles, 10 percent cobbles, 5 percent stones; slightly acid (pH 6.2); clear wavy boundary.

2Bw2 -- 21 to 39 inches; yellowish brown (10YR 5/4) clay, brown (10YR 4/3) moist; moderate coarse prismatic structure parting to moderate coarse subangular blocky; very hard, very firm, sticky and very plastic; few very fine roots; common very fine and few fine tubular pores; common fine distinct (7.5YR 3/2) soft Mn accumulations in matrix, (7.5YR 3/2) moist; common fine distinct (10YR 6/6) soft Fe accumulations in matrix, (10YR 5/6) moist; few fine distinct (2.5Y 3/0) Mn concretions in matrix, (2.5Y 3/0) moist; many fine distinct (2.5Y 7/2) clay depletions on ped faces and lining fine pores, (2.5Y 5/2) moist; few fine prominent (5Y 6/1) Fe depletions lining fine pores, (5Y 5/1) moist 10 percent pebbles, trace cobbles and stones; slightly acid (pH 6.1), gradual wavy boundary.

2Bss -- 39 to 60 inches; light yellowish brown (2.5Y 6/4) clay, light olive brown (2.5Y 5/4) moist; weak coarse subangular blocky structure; very hard, very firm, sticky and very plastic; few very fine roots; common very fine tubular pores; common coarse distinct (2.5Y 5/2) Fe depletions in an irregular matrix, (2.5Y 4/2) moist; few fine prominent (7.5YR 3/2) soft Mn accumulations lining pores, (7.5YR 3/2) moist; few fine prominent (10YR 6/6) soft Fe masses adjacent to pores, (10YR 5/6) moist; few fine prominent (2.5Y 3/0) Mn concretions in matrix, (2.5Y 3/0) moist; common fine distinct (10YR 7-8/2) clay depletions lining pores, (10YR 5/2) moist; few slickensides; 10 percent pebbles, trace cobbles and stones; slightly acid (pH 6.2).

Typical pedon location
Legal description: about 1220 feet west and 1400 feet north of the southeast corner of section 23, T. 14 N., R. 40 E., ID.
Latitude: 44 degrees, 29 minutes, 03 seconds north.
Longitude: 111 degrees, 46 minutes, 05 seconds west.
Map Unit in which located: 1140

Range in characteristics
Profile:
Depth class - very deep
Drainage class - moderately well drained
Mollic epipedon thickness - 7 to 16 inches
Depth to lithologic discontinuity - 15 to 30 inches
Clay in particle size control section, weighted average - 35 to 50 percent
Rock fragments in particle size control section, weighted average -0 to 35 percent

A horizons
Value - 3 or 4 dry, 2 or 3 moist
Chroma - 2 or 3 dry or moist
Reaction - slightly acid or neutral

Bw1 horizon
Hue - 7.5YR or 10YR
Value, matrix - 5 to 7 dry, 3 to 5 moist
Chroma, matrix - 2 to 4 dry or moist
Texture, less than 2 mm fraction - clay loam or silty clay loam
Clay - 27 to 40 percent
Pebbles - 0 to 25 percent
Cobbles - 0 to 30 percent
Stones - 0 to 5 percent
Reaction - slightly acid or neutral

2Bw2 and 2Bss horizons
Hue - 5YR to 5Y
Texture, less than 2 mm fraction - silty clay, silty clay loam or clay
Clay - 35 to 50 percent
Pebbles - 0 to 10 percent
Cobbles - 0 to 10 percent
Stones - 0 to 5 percent
Reaction - moderately acid to mildly alkaline
Other - Cracks, 5 mm or more wide, occur for some time in most years in the 2Bw2 horizon.

ABLA/VAGL,VAGL Koffgo, humid Ecological Type

This ecological type is named for the occurrence

of subalpine fir/blue huckleberry habitat type, blue huckleberry phase on Koffgo, humid soils.

Environmental Setting
Landforms: plateaus
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 8 to 20 percent
Elevation: 6600 to 7800 feet
Average annual precipitation: 24 to 32 inches
Average annual temperature: 34 to 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Vaccinium globulare* habitat type, *Vaccinium globulare* phase.

Present communities: The lodgepole pine/blue huckleberry c.t., Douglas-fir/blue huckleberry community and subalpine fir/blue huckleberry h.t., blue huckleberry phase are supported in lightly disturbed areas. The lodgepole pine/elk sedge c.t. and communities dominated by elk sedge or snowbrush ceanothus are supported in recent clearcut and scarified areas or in plantations.

Vegetation Composition (N=20)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	65	5.3
Picea engelmannii	15	3.3
Pinus albicaulis	5	0.5
Pinus contorta	70	7.0
Pseudotsuga menziesii	90	12.1
Tree d.b.h. < 5 inches		
Abies lasiocarpa	60	9.8
Picea engelmannii	10	0.7
Pinus albicaulis	5	4.0
Pinus contorta	60	3.9
Populus tremuloides	15	4.0
Pseudotsuga menziesii	80	4.2
Shrubs		
Acer glabrum	10	0.7
Amelanchier alnifolia	35	1.7
Arctostaphylos uva-ursi	5	1.0
Berberis repens	40	1.0
Chimaphila umbellata	15	0.5
Clematis columbiana	10	0.5
Lonicera utahensis	100	3.2
Ribes lacustre	10	0.7
Ribes viscosissimum	20	0.5
Rosa acicularis	10	0.5
Rubus parviflorus	30	0.4
Salix scouleriana	15	1.6
Shepherdia canadensis	25	1.7
Sorbus scopulina	60	1.3
Spiraea betulifolia	75	6.3
Symphoricarpos oreophilus	10	0.5
Vaccinium globulare	100	22.2
Vaccinium scoparium	5	1.0
Graminoids		
Bromus carinatus	10	1.0
Calamagrostis rubescens	95	4.9
Carex geyeri	55	6.8
Carex sp.	5	0.5
Carex rossii	20	2.2
Dactylis glomerata	10	0.5
Elymus glaucus	30	0.5
Poa sp.	5	0.5
Poa nervosa	5	0.5
Forbs		
Achillea millefolium	5	1.0
Actaea rubra	5	0.5
Antennaria microphylla	5	0.5
Antennaria racemosa	45	0.6
Aquilegia flavescens	5	0.5
Aquilegia formosa	5	0.5
Aquilegia sp.	5	0.5
Arnica cordifolia	75	1.8
Arnica latifolia	5	0.1
Arnica sp.	5	10.0
Aster conspicuus	15	1.0
Aster engelmannii	20	1.0
Castilleja miniata	5	0.5
Corallorhiza sp.	5	0.5
Corallorhiza striata	5	0.5
Disporum trachycarpum	15	0.5
Epilobium angustifolium	65	2.2
Epilobium minutum	5	0.5
Erigeron sp.	5	1.0
Erythronium grandiflorum	5	0.5
unknown forbs (may be more than one sp.)	10	1.5
Frasera speciosa	5	0.5
Fragaria vesca	25	0.4
Fragaria virginiana	5	1.0
Galium triflorum	5	0.5
Geranium viscosissimum	15	1.3
Goodyera oblongifolia	40	0.4
Helianthella uniflora	5	0.5
Hieracium albiflorum	25	0.6
Hieracium sp.	20	0.8

unknown Liliaceae	5	0.1
Lupinus argenteus	30	2.0
Microsteris gracilis	5	1.0
Mitella stauropetala	10	0.5
unknown Orchidaceae	5	0.5
Osmorhiza chilensis	40	1.8
Osmorhiza depauperata	5	0.5
Osmorhiza sp.	20	0.3
Pedicularis bracteosa	5	2.0
Pedicularis racemosa	50	0.8
Potentilla glandulosa	10	0.5
Pterospora andromedea	10	0.5
Pyrola asarifolia	5	0.5
Pyrola picta	10	0.5
Pyrola secunda	50	0.5
Pyrola sp.	5	0.5
Senecio sp.	5	0.5
Senecio serra	15	2.5
Smilacina racemosa	35	0.5
Streptopus amplexifolius	5	0.5
Thalictrum occidentale	70	1.5
unknown forbs w/ > trace cover	10	2.0
Viola adunca	10	0.5

Soils
The soils of this ecological type are represented by the Koffgo series, humid phase.

Taxonomic class: Loamy-skeletal, mixed Dystric Cryochrepts

Typical pedon description
Koffgo gravelly loam, supporting a subalpine fir/blue huckleberry habitat type, blue huckleberry phase woodland; on a 40 percent north facing slope with a north aspect; about 6850 feet elevation. (Colors are for dry soil unless otherwise stated.)

O–2 to 0 inches; forest litter of needles, cones, and twigs; abrupt smooth boundary.

A–0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, dark grayish brown (10YR 4/2) moist; weak very fine granular structure; soft, very friable, non sticky and slightly plastic; many very fine, common fine, medium, and coarse roots; many very fine irregular pores; 30 percent pebbles, trace cobbles, trace stones; moderately acid (pH 5.6); clear smooth boundary.

Bw1–4 to 17 inches; pale brown (10YR6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine, few fine, medium and coarse roots; common very fine tubular pores; 40 percent pebbles, 10 percent cobbles, trace stones; moderately acid (pH 5.8); gradual wavy boundary.

Bw2–17 to 27 inches; very pale brown (10YR 7/3) extremely gravelly sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine through coarse roots; common very fine tubular pores; 50 percent pebbles, 15 percent cobbles, 5 percent cobbles; moderately acid (pH 5.8); gradual wavy boundary.

2BC–27 to 41 inches; very pale brown (10YR 7/3) extremely cobbly sandy loam, brown(10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; 30 percent pebbles, 30 percent cobbles, and 10 percent stones; moderately acid (pH 6.0); diffuse wavy boundary.

2C–410 to 60 inches; fragmental; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many coarse irregular pores; many coats of silt and sand grains on upper surfaces of rock fragments; 45 percent pebbles, 45 percent cobbles, 10 percent stones.

Typical pedon location
Legal description: about 2100 feet east and 2400 feet south of the northwest corner of section 20, T. 12 N., R. 42 E., ID.
Latitude: 44 degrees, 21 minutes, 17 seconds north
Longitude: 111 degrees, 31 minutes, 40 seconds west.
Map unit in which located: 1594

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Ochric epipedon thickness - 2 to 14 inches

Depth to base of cambic horizon - 15 to 40 inches
Depth to fragmental material - 40 to greater than 60 inches
Clay content of the particle size control section -

7 to 14 percent
Base saturation - 5 to 60 percent

A horizons -
Value: 4 to 6 dry; 2 to 4 moist
Chroma: 1 to 3 dry and moist
Pebbles - 0 to 35 percent
Cobbles - 0 to 10 percent
Stones or boulders - 0 to 5 percent
Reaction - strongly acid or moderately acid

Bw and BC horizons -
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 2 to 4 dry and moist
Texture, less than 2 mm - loam, sandy loam, or silt loam
Rock fragments - 20 to 90 percent
Pebbles - 5 to 60 percent
Cobbles - 15 to 50 percent
Stones or boulders - 0 to 40 percent
Reaction - moderately acid or slightly acid

C1 horizon -
Hue - 10YR, 2.5Y or 5Y
Value - 6 or 7 dry, 5 or 6 moist
Chroma - 1 to 3 dry and moist
Rock fragments - 50 to 90 percent
Pebbles - 5 to 40 percent
Cobbles - 0 to 65 percent
Stones or boulders - 10 to 85 percent
Reaction - moderately acid to neutral

PSME/SYAL Cherpi Ecological Type

This ecological type is named for the occurrence of Douglas-fir/common snowberry habitat type on Cherpi soils.

This is a weakly defined eological type and more documentation will be collected.

Environmental Setting
Landforms: foothills and mountains
Parent Material: local alluvium or colluvium derived from loess and rhyolitic tuff
Slope range: 12 to 60 percent
Elevation: 5500 to 5800 feet
Average annual precipitation: 18 to 24 inches
Average annual temperature: 36 to 41 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Symphoricarpos albus* habitat type.

Present communities: The quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/pinegrass c.t. is commonly supported.

Vegetation Composition (N=1)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Populus tremuloides	100	15.0
Tree d.b.h. < 5 inches		
Populus tremuloides	100	30.5
Shrubs		
Amelanchier alnifolia	100	0.5
Berberis repens	100	1.0
Ceanothus velutinus	100	0.5
Prunus virginiana ssp. melanocarpa	100	15.0
Rosa acicularis	100	15.0
Symphoricarpos oreophilus	100	10.0
Graminoids		
Agropyron sp.	100	0.5
Calamagrostis rubescens	100	3.0
Forbs		
Achillea millefolium	100	0.5
Agoseris aurantiaca	100	0.5
Agastache urticifolia	100	0.5
Apocynum androsaemifolium	100	0.5
Arnica cordifolia	100	1.0
Aster integrifolius	100	0.5
Balsamorhiza sagittata	100	0.5
Cirsium sp.	100	0.5
Corallorhiza maculata	100	0.5
Epilobium angustifolium	100	0.5
Galium triflorum	100	0.5
Geranium viscosissimum	100	0.5
Hackelia micrantha (jessicae)	100	0.5
Hieracium sp.	100	0.5
Lomatium sp.	100	0.5
Osmorhiza chilensis	100	0.5
Senecio pauperculus	100	0.5
Senecio serra	100	0.5
Smilacina racemosa	100	0.5
Stellaria americana	100	0.5
Taraxacum officinale	100	0.5
Thalictrum occidentale	100	0.5

Tragopogon dubius	100	0.5

Soil
The soils of this ecological type are represented by the Cherpi series.

Taxonomic class: Ashy-skeletal Vitrandic Cryoborolls

Typical pedon description
Cherpi gravelly loam supporting a quaking aspen/serviceberry- whortleleaf snowberry/pinegrass community type, woodland; on a 50 percent west facing slope; about 5580 feet elevation. (Colors are for dry soil unless otherwise noted.)

Oi--1 to 0 inches; forest litter - twigs, leaves and grass; abrupt smooth boundary.

A1--0 to 3 inches; very dark grayish brown (10YR 3/3) gravelly loam, very dark brown (10YR 2/2) moist; moderate very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine common fine through coarse roots; many very fine irregular pores; 20 percent pebbles; neutral (pH 6.6); abrupt smooth boundary.

A2--3 to 11 inches; brown (7.5YR 5/3) very gravelly loam, dark brown (7.5YR 3/2) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine through coarse roots; many very fine irregular pores; 20 percent pebbles, 10 percent cobbles and 10 percent stones; neutral (pH 6.6); clear wavy boundary.

Bw1--11 to 27 inches; light reddish brown (5YR 6/3) very gravelly sandy loam, reddish brown (5YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine through coarse roots; common very fine tubular pores; 30 percent pebbles, 15 percent cobbles and 10 percent stones; neutral (pH 6.6); clear wavy boundary.

Bw2--27 to 44 inches; light reddish brown (5YR 6/3) very gravelly sandy loam, reddish brown (5YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, few fine and medium roots; common very fine tubular pores; 45 percent pebbles and 10 percent cobbles; slightly acid (pH 6.2); clear smooth boundary.

C--44 to 60 inches; light reddish brown (5YR 6/4) extremely gravelly sandy loam, yellowish brown (5YR 4/6) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine few fine through coarse roots; many very fine irregular pores; 70 percent pebbles and 10 percent cobbles; slightly acid (pH 6.4).

Typical pedon location
Legal description: about 300 feet east and 500 feet north of the southwest corner of section 6, T. 9 N., R 43 E.
Latitude: 44 degrees, 7 minutes, 50 seconds north.
Longitude: 111 degrees, 23 minutes, 50 seconds west.
Map unit in which located: 1410

Range in characteristics
Profile:
Depth class: very deep
Drainage class: well drained
Mollic epipedon thickness - 10 to 16 inches
Solum thickness - 40 inches or greater
Depth to bedrock - greater than 60 inches
Ammonium oxalate extractable aluminum plus 1/2 iron in the 0 to 30 inch zone - 0.05 to 0.4 percent
Volcanic glass content of the less than 2 mm fraction in the 0 to 30 inch zone - greater than 50 percent
Rock fragments in the particle size control section - averages 35 to 70 percent

A horizons:
Hue - 10YR or 7.5YR
Value - 3 to 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry, 1 or 2 moist
Reaction - moderately acid or neutral

B horizons:
Hue - 10YR, 7.5YR or 5YR
Value - 4 to 6 dry, 3 to 5 moist
Chroma - 2 to 6 dry and moist
Texture - very gravelly loam, very gravelly sandy loam, extremely gravelly sandy loam and extremely gravelly loam
Pebbles - 25 to 60 percent
Cobbles - 5 to 20 percent
Stones - 0 to 10 percent

Reaction - moderately acid or neutral

C horizons:
Hue - 10YR, 7.5YR or 5YR
Value - 6 to 8 dry, 4 or 5 moist
Chroma - 3 to 6 dry and moist
Texture - extremely gravelly sandy loam, extremely cobbly sandy loam
Rock fragments - 60 to 90 percent
Reaction - moderately acid to mildly alkaline
Other - some pedons have C horizons consisting of cinders

ABLA/VAGL,VASC Cherpi, cindery substratum, moist Ecological Type

Incompletely defined at time of this printing.

ABLA/VAGL,VASC Flatstone Ecological Type

This ecological type is named for the occurrence of subalpine fir/blue huckleberry habitat type grouse whortleberry phase on Flatstone soils.

Environmental Setting

Landforms: dissected tablelands and caldera floors
Parent Material: local alluvium or colluvium derived from loess and rhyolitic tuff
Slope range: 4 to 15 percent
Elevation: 5900 to 7000 feet
Average annual precipitation: 22 to 32 inches
Average annual temperature: 34 to 40 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Abies lasiocarpa/Vaccinium globulare* habitat type *Vaccinium scoparium* phase.

Present communities: The lodgepole pine/pinegrass c.t., lodgepole pine/grouse whortleberry c.t., Douglas-fir/pinegrass community, or communites dominated by lodgepole pine and non-native grasses are commonly supported.

Vegetation Composition (N=8)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	12	1.0
Pinus contorta	87	12.7
Pseudotsuga menziesii	62	11.6
Tree d.b.h. < 5 inches		
Abies lasiocarpa	25	0.7
Pinus albicaulis	12	1.5
Pinus contorta	62	5.9
Populus tremuloides	25	0.7
Pseudotsuga menziesii	87	3.8
Shrubs		
Amelanchier alnifolia	25	1.0
Arctostaphylos uva-ursi	50	2.0
Berberis repens	12	0.5
Chimaphila umbellata	12	3.0
Lonicera utahensis	62	4.8
Rosa acicularis	12	1.0
Rubus parviflorus	12	4.0
Salix scouleriana	37	2.3
Sorbus scopulina	62	1.5
Spiraea betulifolia	75	7.5
Symphoricarpos albus	12	1.0
Symphoricarpos oreophilus	12	0.5
Vaccinium globulare	50	23.7
Vaccinium scoparium	62	13.8
Graminoids		
Agrostis exarata	12	0.5
Agropyron trachycaulum	12	0.5
Bromus carinatus	12	0.5
Bromus inermis	12	0.5
Bromus sp.	12	0.5
Calamagrostis rubescens	100	14.3
Carex geyeri	37	9.6
Carex rossii	37	4.1
Dactylis glomerata	12	0.5
Danthonia intermedia	25	1.2
Elymus glaucus	12	1.0
Festuca idahoensis	12	0.5
Phleum pratense	12	0.5
Poa sp.	25	0.5
Poa nervosa	25	0.5
Stipa columbiana	12	3.0
Trisetum spicatum	12	0.5
Forbs		

Achillea millefolium	37	0.5
Agoseris glauca	12	0.5
Antennaria corymbosa	25	1.2
Antennaria microphylla	25	3.0
Arnica cordifolia	75	3.8
Astragalus miser	12	0.5
Calochortus eurycarpus	12	0.5
Campanula rotundifolia	25	0.7
Corallorhiza sp.	12	1.0
Epilobium angustifolium	62	3.0
Eriophyllum lanatum	12	0.5
Erythronium grandiflorum	25	0.5
Fragaria sp.	12	1.0
Fragaria virginiana	37	2.0
Galium triflorum	12	0.5
Geranium sp.	12	0.5
Geranium viscosissimum	50	1.6
Goodyera oblongifolia	12	0.5
Habenaria (Piperia) unalascensis	12	0.5
Hieracium albiflorum	12	3.0
Hieracium cynoglossoides	25	0.5
Hieracium sp.	25	0.5
Lupinus argenteus	37	3.8
Lupinus sp.	12	0.5
unknown Orchidaceae	12	0.5
Osmorhiza chilensis	50	0.7
Potentilla glandulosa	12	0.5
Potentilla gracilis	12	0.5
Potentilla sp.	12	0.5
Pterospora andromedea	12	1.0
Pyrola sp.	12	0.5
Pyrola secunda	12	0.5
Senecio sp.	12	0.5
Smilacina racemosa	12	0.5
Solidago missouriensis	12	1.0
Taraxacum officinale	12	0.5
Thalictrum occidentale	50	2.0
Tragopogon dubius	12	0.5
unknown forbs w/ > trace cover	25	1.0

Soil

The soils of this ecological type are represented by the Flatstone series.

Taxonomic class: Loamy-skeletal, mixed Typic Paleboralfs

Typical pedon description

Flatstone silt loam, on a 12 percent convex sideslope in an area of lodgepole pine/pinegrass community type at an elevation of 6370 feet. (Colors are for dry soil unless otherwise noted.)

0i–1 to 0 inches; Forest litter; slightly decomposed needles, twigs and cones; abrupt smooth boundary.

A–0 to 5 inches; grayish brown (10YR 5/2) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine, few medium roots; many fine irregular pores; 10 percent rhyolite pebbles; moderately acid (pH 5.6); clear smooth boundary.

E1–5 to 13 inches; pale brown (10YR 6/3) gravelly silt loam, dark brown (10YR 4/2) moist; moderate fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine, few medium roots; common very fine irregular, few fine tubular pores; 25 percent rhyolite pebbles; moderately acid (pH 5.6); clear wavy boundary.

E2–13 to 34 inches; light gray (10YR 7/2) extremely stony silt loam, grayish brown (10YR 5/2) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine, few medium roots; few very fine irregular and few fine tubular pores; 10 percent rhyolite pebbles, 30 percent rhyolite cobbles, 40 percent rhyolite stones; moderately acid (pH 5.6); gradual wavy boundary.

E/B–34 to 44 inches; 60 percent light gray (10YR 7/2) extremely cobbly loam, dark yellowish brown (10YR 4/4) moist E material; 40 percent light gray (10YR 7/1), dark yellowish brown (10YR 4/4) moist B material; weak coarse subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; 30 percent rhyolite pebbles, 40 percent rhyolite cobbles, 10 percent rhyolite stones; moderately acid (pH 5.6); clear wavy boundary.

2Bt/E–44 to 54 inches; 70 percent pale brown (10YR 6/3) cobbly loam, dark yellowish brown (10YR 4/4) moist B material; 30 percent light gray (10YR 7/1), dark yellowish brown (10YR 4/4) moist E material; moderate coarse prismatic structure parting to moderate medium subangular blocky; slightly hark, firm, sticky and plastic; fie fine roots, common fine tubular pores; common fine dark yellowish brown (10YR 4/6) moist clay films on ped faces and bridging sand

grains; 10 percent rhyolite pebbles, 10 percent rhyolite cobbles, 5 percent rhyolite stones; moderately acid (pH 5.8); clear wavy boundary.

2Bt--54 to 67 inches; pale brown (10YR 6/3) cobbly clay loam dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, firm, sticky and plastic; few fine roots; common fine tubular pores; common fine dark yellowish brown (10YR 4/4) moist clay films on ped faces and bridging sand grains; 10 percent rhyolite pebbles, 10 percent rhyolite cobbles, 5 percent rhyolite stones; slightly acid (pH 6.4).

Typical pedon location
Legal description: about 500 feet south and 2000 feet east of the northwest corner of sec. 9, T.13N., R.43E., ID.
Latitude: 44 degrees, 28 minutes, 10 seconds north.
Longitude: 111 degrees, 23 minutes, 10 seconds west.
Map unit in which located: 1720

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Depth to argillic horizon - 40 to 50 inches.
Clay in particle-size control section averages - 10 to 14 percent.
Rock fragments in the particle size control section averages - 35 to 50 percent.
Reaction - moderately acid or slightly acid.

A horizons:
Value - 4 or 5 dry and 2 or 3 moist
Chroma - 2 or 3 dry or moist
Rock fragments - 0 to 10 percent

E horizons:
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 2 or 3 dry or moist
Texture, less than 2 mm fraction - silt loam or loam
Coarse fragments - 25 to 80 percent.

E/B and 2B/E horizons:
Value -
E material - 6 or 7 dry, 5 or 6 moist
B material - 5 or 6 dry, 4 or 5 moist
Chroma -
E material - 1 to 4 dry or moist
B material - 2 to 4 dry or moist
Texture, less than 2 mm fraction - averages silt loam or loam
Rock fragments - 25 to 80 percent

Bt horizons:
Value - 5 or 6 dry, 3 or 4 moist
Chroma - 3 or 4 dry or moist
Rock fragments - 25 to 80 percent

ABLA/VAGL,VASC Huckridge, humid Ecological Type

Incompletely defined at time of this printing

ABLA/VAGL,VASC Koffgo, cool Ecological Type

This ecological type is named for the occurrence of subalpine fir/blue huckleberry habitat type, grouse whortleberry phase on Koffgo, cool soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: foothills, mountains, canyons, dissected tablelands and volcanic domes
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 10 to 60 percent
Elevation: 5300 to 7400 feet
Aspect: 270 degrees
Average annual precipitation: inches
Average annual temperature: degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type isAbies lasiocarpa/Vaccinium globulare habitat type, Vaccinium scoparium phase.

Present communities: The lodgepole pine/grouse whortleberry and lodgepole pine/blue huckleberry c.t.s are supported on lightly or nondisturbed areas. The lodgepole pine/elk

sedge and lodgepole pine/pinegrass c.t.s are supported in plantations and regenerating clearcuts. Communities dominated by elk sedge or pinegrass are supported in recent clearcut and scarified areas.

Vegetation Composition (N=1)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	100	8.0
Tree d.b.h. < 5 inches		
Pinus contorta	100	3.0
Shrubs		
Chimaphila umbellata	100	0.5
Lonicera utahensis	100	1.0
Salix scouleriana	100	0.5
Spiraea betulifolia	100	3.0
Vaccinium scoparium	100	45.0
Graminoids		
Carex geyeri	100	5.0
Poa pratensis	100	2.0
Forbs		
Arnica cordifolia	100	3.0
Hieracium albiflorum	100	0.5
Lupinus argenteus	100	1.0
Pterospora andromedea	100	0.5

Soil
The soils of this ecological type are represented by the Koffgo series, cool phase.

ABLA/VAGL,VASC Nopla, till substratum Ecological Type

This ecological type is named for the occurrence of subalpine fir/blue huckleberry habitat type, grouse whortleberry phase on Nopla, till substratum soils.

Environmental Setting
Landforms: ground moraines
Parent Material: local alluvium derived from loess and mixed volcanic rocks
Slope range: 4 to 15 percent
Elevation: 6400 to 7000 feet
Average annual precipitation: 28 to 34 inches
Average annual temperature: 35 to 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Vaccinium globulare* habitat type, *Vaccinium scoparium* phase.

Present communities: Communities dominated by elk sedge or pinegrass are supported in recent clearcut and scarified areas. The lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t. and lodgepole pine/grouse whortleberry community are supported in some areas.

Vegetation Composition (N=12)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	8	15.0
Tree d.b.h. < 5 inches		
Pinus contorta	16	12.2
Populus tremuloides	16	4.5
Pseudotsuga menziesii	8	2.0
Shrubs		
Amelanchier alnifolia	8	3.0
Ceanothus velutinus	8	2.0
Chimaphila umbellata	16	1.0
Lonicera utahensis	75	8.8
Prunus virginiana ssp. melanocarpa	16	4.0
Salix spp.	33	2.6
Sorbus scopulina	25	2.5
Spiraea betulifolia	8	20.0
Symphoricarpos albus	16	2.5
Symphoricarpos oreophilus	8	10.0
Vaccinium globulare	16	5.0
Vaccinium scoparium	83	18.3
Graminoids		
Agropyron sp.	8	0.5
Bromus sp.	8	0.5
Calamagrostis rubescens	83	30.0
Carex geyeri	100	33.5
Stipa sp.	8	3.0
Forbs		
Achillea millefolium	41	1.7
Arnica cordifolia	16	0.5
Aster sp.	50	5.9
Campanula rotundifolia	16	0.5
Epilobium angustifolium	91	11.9
Eriogonum sp	8	0.5
Frasera speciosa	8	1.0
Geranium viscosissimum	33	6.7
Geum triflorum	8	13.0

Hieracium cynoglossoides	8	0.5
Lupinus argenteus	25	4.0
Lupinus sp.	33	4.7
Machaeranthera canescens	8	3.0
Pedicularis sp.	25	1.8
Perideridia gairdneri	8	0.5
Potentilla sp.	8	2.0
Thalictrum fendleri	50	5.5
Thalictrum occidentale	16	0.7
unknown Umbelliferae	8	0.5
unknown forbs (may be more than one sp.)	8	5.0

Soil

The soils of this ecological type are represented by the Nopla series, till substratum phase.

Taxonomic class: Fine-loamy, mixed Cryic Paleborolls

Typical pedon description

Nopla, till substratum silt loam; supporting a pinegrass and elk sedge dominated community on clearcut and scarified woodland; on a convex south facing slope of 9 percent; about 6640 feet elevation. (Colors are for dry soil unless otherwise noted.)

O--2 to 0 inches; pinegrass and elk sedge root mat; abrupt broken boundary.

A1--0 to 2 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure parting to weak very fine granular and moderate medium platy; slightly hard, very friable, nonsticky and slightly plastic; many very fine and fine roots, few medium roots; many very fine irregular pores in the granular peds and few very fine tubular pores in the plates; trace pebbles, 5 percent cobbles, trace stones; strongly acid (pH 5.5); abrupt smooth boundary.

A2--2 to 10 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; strong coarse subangular blocky structure; hard, very friable, nonsticky and slightly plastic; many very fine and fine, few medium and coarse roots; common very fine and few fine tubular pores; trace pebbles, 5 percent cobbles, trace stones; moderately acid (pH 5.6); abrupt wavy boundary.

E1-- 10 to 21 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist; strong coarse and medium subangular blocky structure; hard, very friable, nonsticky and slightly plastic; many very fine, common fine and few medium roots; common very fine and fine tubular pores; 5 percent pebbles, 5 percent cobbles, trace stones; moderately acid (pH 5.7); clear wavy boundary.

E2--21 to 31 inches; light yellowish brown (10YR 6/4) gravelly silt loam, dark yellowish brown (10YR 4/4) moist; moderate coarse prismatic structure parting to strong coarse subangular blocky; hard, very friable; nonsticky and slightly plastic; common very fine and fine and few medium roots; many fine and few very fine tubular pores; 10 percent pebbles, 5 percent cobbles, trace stones; moderately acid (pH 5.6); clear wavy boundary.

Bt/E--31 to 42 inches; yellowish brown (10YR 5/4) grgavelly loam, dark yellowish brown (10YR 4/4) moist; 40 percent fine, pale brown (10YR 6/3) tongues of E material, brown (10YR 4/3) moist; moderate coarse prismatic structure parting to strong coarse subangular blocky; hard, friable, slightly sticky and plastic; common very fine, few fine and medium roots; many fine and few fine tubular pores; 10 percent pebbles, 5 percent cobbles, trace stones; moderately acid (pH 5.6); clear wavy boundary.

Bt--42 to 49 inches; light yellowish brown (10YR 6/4) gravelly loam; dark yellowish brown (10YR 4/4) moist; strong coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine, few fine and medium roots; many very fine and fine tubular pores; many distinct reddish brown (5YR 4/4) clay films on ped faces, rock fragments and lining pores, dark reddish brown (5YR 3/4) moist; 10 percent pebbles, 5 percent cobbles, trace stones; moderately acid (pH 5.7); clear broken boundary.

Btq--49 to 57 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, brown (10YR4/3) moist; moderate medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine and fine tubular and common fine and medium irregular pores; 40 percent weak discontinuous cementation; common distinct reddish brown (5YR 4/4) clay films on ped faces, on rock fragments and lining pores, dark reddish brown (5YR 3/4) moist; common distinct reddish brown (7.5YR 6/6) silica

coats on ped faces, on rock fragments and lining pores, strong brown (7.5YR 5/6) moist; 10 percent pebbles, 5 percent cobbles, trace stones; moderately acid (pH 5.6); clear wavy boundary.

BC--57 to 70 inches; light yellowish brown (10YR 6/4) gravelly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine irregular pores; 10 percent pebbles, 5 percent cobbles, trace stones; moderately acid (pH 5.6).

Typical pedon location
Legal description: about 2100 feet south and 10 feet west of the northeast ccorner of section 21, T.10N., R.45E., ID.
Latitude: 44 degrees, 47 minutes, 38 seconds north.
Longtitude: 111 degrees, 8 minutes, 3 seconds west.
Map Unit in which located: 1580

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 20 inches
Depth to argillic horizon - 24 to 40 inches
Depth to accumulations of secondary silicates - 28 to 50 inches
Depth of solum - greater than 60 inches
Clay in particle size control section, weighted average - 18 to 27
percent
Stones - 0 to 5 percent
Boulders - 0 to 2 percent
Base Saturation - 20 to 60 percent

O horizon
Thickness - commonly 1/2 to 2 inches thick
Form - Commonly forest litter of leaves, needles and stems on lightly or undisturbed pedons. On pedons where recent, heavy mechanical disturbance has occurred a root mat of pinegrass, elk sedge, or both is common.

A horizons
Hue - 10YR or 7.5YR
Value - 3, 4 or 5 dry; 2 or 3 moist
Chroma - 2 or 3
Texture - silt loam or loam
Pebbles - 0 to 10 percent
Cobbles - 0 to 5 percent

E horizons
Value - 5 or 6 dry, 3 or 4 moist
Texture, less than 2 mm - loam, silt loam
Pebbles - 0 to 30 percent
Cobbles - 0 to 5 percent
Reaction - strongly acid to slightly acid
Other - Some pedons have up to 5 percent very fine veins or lamella, or both, of B material in a matrix of E material.

B/E horizon
Value, B portion - 5 or 6 dry, 3 or 4 moist
E portion - 6 or 7 dry, 4 or 5 moist
Texture, less than 2 mm - loam or silt loam
Pebbles - 0 to 30 percent
Cobbles - 0 to 5 percent
Reaction - strongly acid to slightly acid
Other - About 15 to 40 percent tongues of E material in a matrix of B material. Horizon is broken in some pedons.

Bt horizon
Value - 5 or 6 dry, 3 or 4 moist
Texture, less than 2 mm - loam or silt loam
Pebbles - 5 to 30 percent
Cobbles - 0 to 5 percent
Reaction - moderately acid or slightly acid
Other - Horizon is continuous in some pedons.

Btq or Bq horizons
Hue - 7.5YR, 10YR or 2.5Y
Value - 5 or 6 dry, 4 or 5 moist
Chroma - 2, 3 or 4
Texture, less than 2 mm - loam, sandy loam or sandy clay loam
Pebbles - 10 to 30 percent
Cobbles - 0 to 5 percent
Reaction - moderately acid or slightly acid
Other - Cementation by secondary silicates occurs as weak discontinuous lenses, 10 to greater than 40 inches in horizontal diameter, or as durinodes in a friable matrix, or both. Horizon is broken in some pedons.

BC horizon
hue - 10YR or 2.5Y
value - 5, 6 or 7 dry; 4, 5 or 6 moist
chroma - 2, 3 or 4
texture, less than 2 mm - sandy loam or loam
pebbles - 10 to 35 percent
cobbles - 0 to 25 percent

reaction - moderately acid or slightly acid

ABLA/VAGL,VASC Winegar Ecological Type

This ecological type is named for the occurrence of subalpine fir/blue huckleberry habitat type, grouse whortleberry phase on Winegar soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: ground moraines
Parent Material: local alluvium derived from glacial till and loess
Slope range: 4 to 15 percent
Elevation: 6200 to 6650 feet
Average annual precipitation: 30 to 40 inches
Average annual temperature: 35 to 39 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Vaccinium globulare* habitat type, *Vaccinium scoparium* phase.

Present communities: The lodgepole pine/blue huckleberry or lodgepole pine/grouse whortleberry c.t.s and Douglas-fir/blue huckleberry communities are supported on lightly or nondisturbed areas. The lodgepole pine/elk sedge or lodgepole pine/pinegrass c.t.s are supported in plantations and regenerating clearcuts. Communities dominated by elk sedge or pinegrass are supported in recent clearcut and scarified areas.

Vegetation Composition (N=2)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	50	18.0
Pseudotsuga menziesii	50	1.0
Tree d.b.h. < 5 inches		
Pinus contorta	50	2.5
Pseudotsuga menziesii	50	2.5
Shrubs		
Amelanchier alnifolia	100	0.5
Ceanothus velutinus	50	0.5
Lonicera utahensis	100	5.2
Salix scouleriana	50	0.5
Salix spp.	50	0.5
Shepherdia canadensis	50	2.0
Sorbus scopulina	50	0.5
Spiraea betulifolia	100	1.2
Symphoricarpos albus	50	0.5
Vaccinium caespitosum	50	0.5
Vaccinium globulare	100	12.7
Vaccinium scoparium	50	50.0
Graminoids		
Calamagrostis rubescens	100	13.0
Carex geyeri	100	9.0
Forbs		
Agoseris sp.	50	0.5
Arnica cordifolia	50	0.5
Aster engelmannii	50	0.5
Epilobium angustifolium	100	0.5
Fragaria vesca	50	0.5
Geranium viscosissimum	50	0.5
Hieracium sp.	50	0.5
Lupinus argenteus	50	0.5
Osmorhiza chilensis	50	0.5
Pedicularis bracteosa	50	0.5
Pterospora andromedea	50	0.5
Thalictrum occidentale	50	0.5
Viola nuttallii	50	0.5

Soils
The soils of this ecological type are represented by the Winegar series.

Taxonomic class: Ashy Typic Vitricryand

Typical pedon description
Winegar gravelly silt loam, supporting a Douglas-fir/blue huckleberry community; on a 7 percent rolling slope with an east aspect; about 6250 feet elevation. (Colors are for dry soil unless otherwise noted.)

O--1 to 0 inches; forest litter; abrupt smooth boundary.

A--0 to 4 inches; dark yellowish brown (10YR 4/4) gravelly silt loam, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine, common medium and few fine roots; many very fine irregular pores; 15 percent pebbles, trace cobbles, stones and boulders; moderately acid (pH 5.6); abrupt smooth boundary.

Bw1--4 to 14 inches; dark yellowish brown (10YR 4/4) silt loam, dark yellowish brown (10YR 3/4) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; 10 percent pebbles, trace cobbles, stones and boulders; moderately acid (pH 5.8); gradual smooth boundary.

Bw2--14 to 26 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 3/4) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; 10 percent pebbles, trace cobbles, stones and boulders; moderately acid (pH 6.0); abrupt irregular boundary.

2BC--26 to 38 inches; light olive brown (2.5Y 5/4) very gravelly sandy loam, olive brown (2.5Y 4/4) moist; massive; soft, very friable; nonsticky and slightly plastic; many very fine and few fine roots; few very fine tubular pores; 50 percent, gray (10YR 5/1) cobble-sized fragments of dense basal till that crushes to a very gravelly sandy loam; 25 percent pebbles, 10 percent cobbles and trace stones and boulders; slightly acid (pH 6.4); clear irregular boundary.

2Cd--38 to 65 inches; gray (10YR 5/1) dense basal till that crushes to a very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; hard, firm and brittle, nonsticky and nonplastic; few very fine roots following the weathering rind; many very fine and few fine irregular pores; , common fine (less than 5 mm thick) distinct (10YR 3/4-6 moist) weathering rind around coarse pebbles, cobbles, stones and boulders; 25 percent pebbles, 10 percent cobbles, trace stones and boulders.

Typical pedon location
Legal description: about 2800 feet north and 1200 feet east of the southwest corner section 12., T. 9 N., R. 46 E., ID.
Latitude: 44 degrees, 7 minutes, 18 seconds north.
Longitude: 111 degrees, 5 minutes, 21 seconds west.
Map Unit in which located: 1516

Range in characteristics
Profile:
Depth class - moderately deep to dense basal till
Drainage class - moderately well drained
Depth of andic soil properties - 20 to 40 inches
Depth to dense basal till - 20 to 40 inches
Reaction - strongly acid to slightly acid
Rock fragments in the particle-size control section averages - 15 to 35 percent
Base saturation - 10 to 40 percent

A horizon:
Hue - 10YR or 7.5YR
Value - 4 or 5 dry
Chroma - 2 through 4 dry or moist
Pebbles - 0 to 20 percent
Cobbles - 0 to 5 percent
Stones - 0 to 5 percent

Ammonium oxalate extractable Al plus 1/2 Fe - 1.0 to 2.0 percent

Bw horizons:
Hue - 10YR or 7.5YR
Value - 5 or 6 dry, 3 or 4 moist
Texture, less than 2 mm fraction - loam, silt loam or sandy loam
Pebbles - 5 to 25 percent
Cobbles - 0 to 10 percent
Stones - 0 to 5 percent
Ammonium oxalate extractable Al plus 1/2 Fe - 1.0 to 2.0 percent

2BC or 2B/C horizons:
Hue - 2.5Y through 7.5YR
Value - 5 or 6 dry, 3 or 4 moist
Chroma, mixed - 2 or 3 dry or moist
B portion, 4 or 6 dry or moist
C portion, 0 through 2 dry or moist
Texture, less than 2 mm fraction - loam or sandy loam
Pebbles - 25 to 45 percent
Cobbles - 0 to 20 percent
Stones - 0 to 5 percent
Channer-sized dense basal till fragments that crush easily - 0 to 80 percent
Ammonium oxalate extractable Al plus 1/2 Fe - 0.5 to 1.5 percent
Other - Horizon is discontinuous in some pedons.

2Cd horizon:
Hue - 2.5Y or 10YR
Value - 5 or 6 dry, 3 or 4 moist
Chroma - 0 to 2 dry or moist
Texture, less than 2 mm fraction, crushed - sandy loam or loamy sand

Pebbles - 25 to 45 percent
Cobbles - 0 to 10 percent
Stones - 0 to 5 percent
Ammonium oxalate extractable Al plus 1/2 Fe - less than 1.0 percent

ABLA/VASC Oleo Ecological Type

This ecological type is named for the occurrence of subalpine fir/grouse whortleberry habitat type, grouse whortleberry or pinegrass phase on Oleo soils.

Environmental Setting

Landforms: plateaus
Parent Material: local alluvium derived from loess and tephra
Slope range: 2 to 15 percent
Elevation: 6800 to 8200 feet
Average annual precipitation: 30 to 60 inches
Average annual temperature: 30 to 36 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Abies lasiocarpa/Vaccinium scoparium* habitat type, *Vaccinium scoparium* or *Calamagrostis rubescens* phases.

Present communities: The lodgepole pine/grouse whortleberry c.t. is supported in lightly or nondisturbed areas. The lodgepole pine/elk sedge c.t. is supported on regenerating clearcuts. Communities dominated by elk sedge are supported in recent clearcut or scarified areas.

Vegetation Composition (N=10)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	70	1.7
Pinus albicaulis	10	1.0
Pinus contorta	100	11.6
Tree d.b.h. < 5 inches		
Abies lasiocarpa	60	5.9
Pinus albicaulis	70	1.7
Pinus contorta	100	10.2
Pseudotsuga menziesii	30	0.9
Shrubs		
Amelanchier alnifolia	10	0.5
Lonicera utahensis	70	2.3
Salix scouleriana	20	0.5
Sorbus scopulina	20	1.0
Spiraea betulifolia	40	1.8
Vaccinium globulare	10	0.5
Vaccinium scoparium	100	32.3
Graminoids		
Calamagrostis rubescens	100	3.7
Carex geyeri	90	14.2
Carex rossii	30	1.5
Forbs		
Achillea millefolium	10	0.5
Arnica cordifolia	70	1.7
Corallorhiza sp.	40	0.5
Epilobium angustifolium	60	1.0
Erigeron sp.	10	0.5
Geranium viscosissimum	10	0.5
Hieracium albiflorum	40	0.7
Hieracium cynoglossoides	10	0.5
Hieracium sp.	10	0.5
Lupinus argenteus	20	0.5
Lupinus sp.	20	1.2
Pedicularis racemosa	10	0.5
Thalictrum occidentale	10	0.5
unknown forbs (may be more than one sp.)	40	0.7

Soils

The soils of this ecological type are represented by the Oleo series.

Taxonomic class: Ashy Alfic Vitricryands

Typical pedon description

Oleo silt loam, supporting a lodgepole pine/grouse huckleberry community type on an undulating slope of 5 percent with southwest aspect; about 7850 feet elevation. (Colors are for air dry soil unless otherwise noted.)

O--1 to 0 inches; forest litter of needles, twigs and leaves; abrupt smooth boundary.

A1--0 to 2 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak coarse platy structure parting to weak very fine granular; soft, very friable, nonsticky and slightly plastic; common very fine, fine and medium roots, few coarse roots; many very fine irregular pores; trace pebbles, cobbles and stones; moderately acid (pH 6.0); abrupt smooth boundary.

A2--2 to 10 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure parting to weak very fine granular; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine roots, few coarse and medium roots, many very fine irregular pores; trace pebbles, cobbles and stones; strongly acid (pH 5.5); clear smooth boundary.

B/E--10 to 28 inches; light yellowish brown (10YR 6/4) and very pale brown (10YR 7/3) silt loam, dark yellowish brown (10YR 4/4) and brown (10YR 5/3) moist; 70 percent B material and 30 percent E material in a fine to medium (less than 15 mm) irregular matrix; moderate coarse subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; few very fine and fine roots; many very fine tubular pores; 5 percent pebbles and trace cobbles and stones; moderately acid (pH 5.7); clear wavy boundary.

Bt1--28 to 43 inches; pale brown (10YR 6/3) gravelly silt loam, brown (10YR 4/3) moist; strong coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots, common very fine tubular pores; common distinct clay films on faces of peds and lining pores; many distinct uncoated silt grains on faces of peds; 15 percent pebbles, trace cobbles stones; moderately acid (pH 5.8); clear wavy boundary.

Bt2--43 to 60 inches; pale brown (10YR 6/3) very cobbly silt loam, brown (10YR 4/3) moist; strong coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots, common very fine tubular pores; common distinct clay films on faces of peds and lining pores; many distinct uncoated silt grains on faces of peds; 10 percent pebbles, 20 percent cobbles and 15 percent stones; moderately acid (pH 5.8).

Typical pedon location
Legal description: about 2600 feet west and 800 feet south of the northeast corner of section 19, T. 14 N., R, 45 E., ID.
Latitude: 44 degrees, 31 minutes, 43 seconds north.
Longitude: 111 degrees, 11 minutes, 3 seconds west.
Map unit in which located: 1573

Range in characteristics
Profile:
Depth class - very deep
Drainage - well drained
Umbric epipedon thickness - 10 to 25 inches
Depth of solum - 40 to greater than 60 inches
Volcanic glass in the 0.02 to 2.0 mm fraction - greater than 50 percent
Depth of andic soil properties - 28 to 40 inches
Rock fragments in particle size control section averages - 5 to 35 percent
Reaction - strongly or moderately acid

O horizon:
Thickness - 1/2 to 2 inches thick
Form - commonly forest litter of needles, twigs and leaves on lightly or undisturbed pedons. On pedons where recent, heavy mechanical disturbance has occurred a root mat of elk sedge is common.

A horizons:
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry or moist
Ammonium oxalate extractable Al plus 1/2 Fe - 0.4 to 1.0 percent
Phosphate retention - 35 to 60 percent
15-bar water (air dry samples) - 5 to 12 percent

B/E horizon:
Value, B portion - 5 or 6 dry, 4 or 5 moist
E portion - 6 or 7 dry, 5 or 6 moist
Chroma, B portion - 3 or 4 dry or moist
E portion, 2 or 3 dry or moist
Texture, less than 2 mm fraction - loam or silt loam
Pebbles - 5 to 30 percent
Cobbles - 0 to 15
Stones or boulders - 0 to 15 percent
Ammonium oxalate extractable Al plus 1/2 Fe - 0.4 to 1.0 percent
Phosphate retention - 35 to 60 percent
15-bar water (air dry samples) - 5 to 12 percent

Bt horizon:
Value - 5 or 6 dry, 4 or 5 moist
Chroma - 3 or 4 dry or moist
Texture, less than 2 mm fraction - loam or silt loam
Pebbles - 5 to 30 percent
Cobbles - 0 to 20
Stones or boulders - 0 to 15 percent
Ammonium oxalate extractable Al plus 1/2 Fe - less than 0.4 percent

Other - a BC horizon is present in some pedons.

ABLA/VASC,CARU Bradco Ecological Type

This ecological type is named for the occurrence of subalpine fir/grouse whortleberry habitat type, pinegrass phase on Bradco soils.

Environmental Setting

Landforms: ground moraines
Parent Material: local alluvium derived from loess and glacial till
Slope range: 4 to 15 percent
Elevation: 6400 to 6700 feet
Average annual precipitation: 30 to 40 inches
Average annual temperature: 35 to 39 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Abies lasiocarpa/Vaccinium scoparium* habitat type, *Calamagrostis rubescens* phase.

Present communities: The lodgepole pine/pinegrass c.t. and lodgepole pine/grouse whortleberry c.t. are supported on lightly disturbed areas. Communities dominated by elk sedge or pinegrass are supported on recent clearcut and scarified areas.

Vegetation Composition (N=6)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. < 5 inches		
Abies lasiocarpa	33	1.2
Pinus contorta	50	10.3
Shrubs		
Amelanchier alnifolia	16	0.5
Lonicera utahensis	83	4.2
Salix spp.	33	2.0
Shepherdia canadensis	16	4.0
Spiraea betulifolia	66	4.7
Symphoricarpos albus	33	5.2
Vaccinium globulare	33	4.5
Vaccinium scoparium	66	28.1
Graminoids		
Calamagrostis rubescens	66	32.5
Carex geyeri	100	31.6
Unknown grasses w/ >trace cover	33	9.0
Forbs		
Achillea millefolium	33	2.5
Arenaria congesta	16	2.0
Aster sp.	16	3.0
Epilobium angustifolium	50	4.6
unknown forbs (may be more than one sp.)	16	4.0
Geranium viscosissimum	50	3.3
Lupinus sp.	100	4.5
Microsteris gracilis	16	5.0
Senecio sp.	16	3.0
Thalictrum fendleri	16	0.5

Soil

The soils of this ecological type are represented by the Bradco series.

Taxonomic class: Ashy Humic Vitricryands

Typical pedon description

Bradco fine sandy loam, supporting an elk sedge community on clearcut and scarified woodland; on an 11 percent rolling slope with a southeast aspect; about 6575 feet elevation. (Colors are for dry soil unless otherwise noted.)

0–2 to 0 inches; root mat of elk sedge; abrupt broken boundary.

A1–0 to 10 inches; dark brown (10YR 4/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots, few medium roots; many very fine irregular pores; 10 percent pebbles, trace cobbles and stones; moderately acid (pH 5.8); clear smooth boundary.

A2–10 to 18 inches; brown (10YR 5/3) gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure parting to weak very fine granular; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine tubular pores, many very fine irregular pores; 15 percent pebbles; trace cobbles and stones; slightly acid (pH 6.1); gradual wavy boundary.

Bw--18 to 29 inches; yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; weak coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine roots; few very fine and fine tubular pores; 20 percent pebbles, 5 percent cobbles, trace stones; slightly acid (pH 6.2); abrupt irregular boundary.

B/C--29 to 36 inches; brownish yellow (10YR 6/6) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; 80 percent light brownish gray (2.5Y 6/2) slightly hard channer sized fragments of dense basal till, very dark grayish brown (2.5Y 3/2) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine tubular pores; 25 percent pebbles, 5 percent cobbles, trace stones; slightly acid (pH 6.2); horizon occurs as a weathering mantle and as narrow, weathering fractures into the underlying dense basal till; clear irregular boundary.

Cd--36 to 60 inches; light brownish gray (2.5Y 6/2) dense basal till that crushes to a gravelly loamy sand; very dark grayish brown (2.5Y 3/2) moist; massive; very hard, firm, nonsticky and nonplastic; many very fine and fine irregular pores; 25 percent pebbles, 5 percent cobbles, trace stones; slightly acid (pH 6.1).

Typical pedon location
Legal description: about 600 feet west and 1500 feet north of the southeast corner section 22., T. 10 N., R. 45 E., ID.
Latitude: 44 degrees, 10 minutes, 33 seconds north.
Longitude: 111 degrees, 06 minutes, 57 seconds west.
Map Unit in which located: 1518

Range in characteristics
Profile:
Depth class - moderately deep
Drainage class - well drained
Umbric epipedon thickness - 12 to 20 inches
Depth to dense basal till - 20 to 40 inches
Reaction - strongly acid to slightly acid
Rock fragments in the particle size control section averages - 15 to 35 percent

O horizon:
Thickness - commonly 1/2 to 3 inches
Form - Commonly forest litter of leaves, needles and stems on lightly or undisturbed pedons. On pedons where recent, heavy mechanical disturbance has occurred, a rootmat of elk sedge or pinegrass, or both is common.

A horizons:
Hue - 10YR or 7.5YR
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry or moist
Texture, less than 2 mm fraction - loam or fine sandy loam
Pebbles - 0 to 20 percent
Cobbles - 0 to 5 percent
Stones - 0 to 5 percent
Ammonium oxalate extractable Al plus 1/2 Fe - 1.0 to 2.0 percent

Bw horizons:
Hue - 2.5Y or 10YR
Value - 5 or 6 dry, 3 or 4 moist
Texture, less than 2 mm fraction - loam, fine sandy loam or sandy loam
Pebbles - 15 to 25 percent
Cobbles - 0 to 10 percent
Stones - 0 to 5 percent

B/C horizon:
Hue - 2.5Y or 10YR
Value - 5 or 6 dry, 3 or 4 moist
Chroma, mixed - 2 or 3 dry or moist
B portion - 4 or 6 dry or moist
C portion - 0 through 2 dry or moist
Texture, less than 2 mm fraction - loam, fine sandy loam or sandy loam
Pebbles - 25 to 45 percent
Cobbles - 0 to 20 percent
Stones - 0 to 5 percent
Channer sized dense basal till fragments that crush easily - 0 to 80 percent
Other - Horizon is broken in some pedons.

Cd horizon:
Hue - 2.5Y or 10YR
Value - 5 or 6 dry, 3 or 4 moist
Chroma - 0, 1, or 2 dry or moist
Texture, less than 2 mm fraction, crushed - sandy loam or loamy sand
Pebbles - 25 to 45 percent
Cobbles - 0 to 10 percent
Stones - 0 to 5 percent

Related ecological types
ABLA/VASC Oleo
ABLA/VAGL, VASC Winegar

ABLA/VASC,CARU Fitzwil Ecological Type

This ecological type is named for the occurrence of subalpine fir/grouse whortleberry habitat type, pinegrass phase on Fitzwil soils.

Environmental Setting
Landforms: dissected tablelands and caldera floors
Parent Material: local alluvium or colluvium derived from loess and rhyolitic tuff
Slope range: 2 to 8 percent
Elevation: 5900 to 7000 feet
Average annual precipitation: 25 to 30 inches
Average annual temperature: 34 to 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Vaccinium scoparium* habitat type, *Calamagrostis rubescens* phase.

Present communities: Communities dominated by pinegrass, elk sedge or non-native grasses are commonly supported on recent clearcut and scarified areas. The lodgepole pine/pinegrass c.t., lodgepole pine/grouse whortleberry c.t., Douglas-fir/grouse whortleberry community, and Douglas-fir/pinegrass community are supported on lightly disturbed areas.

Vegetation Composition (N=9)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	33	1.3
Pinus contorta	88	12.3
Pseudotsuga menziesii	33	9.3
Tree d.b.h. < 5 inches		
Abies lasiocarpa	22	2.0
Pinus albicaulis	11	0.5
Pinus contorta	100	13.2
Populus tremuloides	11	2.0
Pseudotsuga menziesii	44	3.5
Shrubs		
Amelanchier alnifolia	11	0.5
Artemisia tridentata ssp. vaseyana	11	0.5
Arctostaphylos uva-ursi	11	1.0
Berberis repens	11	0.5
Lonicera utahensis	44	1.3
Sorbus scopulina	33	0.8
Spiraea betulifolia	33	3.6
Symphoricarpos albus	11	0.5
Symphoricarpos oreophilus	11	0.5
Vaccinium scoparium	44	24.5
Graminoids		
Agropyron trachycaulum	22	1.2
Bromus carinatus	33	1.6
Bromus inermis	11	5.0
Bromus sp.	11	0.5
Calamagrostis rubescens	100	11.0
Carex geyeri	88	10.3
Carex rossii	44	1.3
Danthonia intermedia	22	1.7
Elymus glaucus	11	2.0
Festuca idahoensis	22	4.5
Koeleria nitida (cristata) (macrantha)	11	7.0
Phleum pratense	11	0.5
Poa sp.	11	0.5
Poa nervosa	11	0.5
Poa nervosa var. wheeleri	22	0.7
Poa pratensis	22	2.0
Trisetum spicatum	11	0.5
Forbs		
Achillea millefolium	44	0.7
Agoseris glauca	44	0.7
Antennaria umbrinella	11	3.0
Arabis sp.	22	0.5
Arnica cordifolia	66	2.6
Arnica sp.	11	0.5
Arnica parryi	11	1.0
Aster integrifolius	22	4.5
Aster occidentalis	11	0.5
Astragalus miser	11	0.5
Calochortus eurycarpus	11	0.5
Campanula rotundifolia	22	0.7
Collomia linearis	22	1.2
Corallorhiza mertensiana	11	1.0
Corallorhiza sp.	22	0.5
Crepis sp.	11	0.5
Delphinium nuttallianum	11	0.5
Epilobium angustifolium	66	1.5
Epilobium sp.	11	1.0
Epilobium minutum	22	1.2
Erigeron glabellus	11	0.5

Erythronium grandiflorum	33	0.8
Eriophyllum lanatum	11	0.5
Fragaria virginiana	33	1.1
Galium bifolium	11	0.5
Geranium viscosissimum	55	1.4
Hieracium albertinum (cynoglossoides)	11	0.5
Hieracium albiflorum	22	1.2
Hieracium cynoglossoides	33	1.0
Hieracium sp.	11	1.0
Lomatium sp.	11	0.5
Lupinus argenteus	88	1.3
Microsteris gracilis	11	0.5
Osmorhiza chilensis	22	0.7
Perideridia gairdneri	33	0.8
Polygonum douglasii	22	1.2
Potentilla glandulosa	11	0.5
Potentilla gracilis	22	1.0
Pterospora andromedea	11	0.5
Solidago nana	11	3.0
Solidago sp.	11	0.5
Solidago missouriensis	33	2.1
Taraxacum officinale	22	0.5
unknown forbs w/ > trace cover	22	2.5
Viola adunca	11	0.5
Viola sp.	22	0.5

Soil
The soils of this ecological type are represented by the Fitzwil series.

Taxonomic class: Loamy-skeletal, mixed Cryic Paleborolls

Typical pedon description
Fitzwil very gravelly loam, supporting a lodgepole pine/elk sedge community, woodland; on a 2 percent slope; about 6360 feet elevation. (Colors are for dry soil unless otherwise noted.)

A1--0 to 6 inches; grayish brown (10YR 5/2) very gravelly loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; 40 percent pebbles; moderately acid (pH 5.8).

A2--6 to 11 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; many very fine and fine roots; common very fine irregular and few fine tubular pores; 35 percent pebbles; slightly acid (pH 6.2).

E--11 to 31 inches; light gray (10YR 7/2) very gravelly sandy loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure parting to weak fine subangular blocky; slightly hard, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine tubular and few very fine irregular pores; 45 percent pebbles; slightly acid (pH 6.4).

Bt--31 to 48 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay loam, brown (10YR 4/3) moist; moderate medium and coarse subangular blocky structure; hard, friable, slightly sticky and plastic; few very fine and fine roots; few very fine tubular pores; many faint clay films on ped faces, on rock fragments and lining pores; 50 percent pebbles; slightly acid (pH 6.4).

BC--48 to 65 inches; yellowish brown (10YR 6/4) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine irregular pores; few pockets (3 to 5 cm in diameter) with faint clay films and uncoated silt/sand grains on ped faces, on rock fragments and bridging sand grains; 60 percent pebbles; slightly acid (pH 6.4).

Typical pedon location
Legal description: about 1200 feet east and 1000 feet south of the northwest corner of sec. 10, T.13 N., R.43 E., ID.
Latitude: 44 degrees, 28 minutes, 14 seconds north.
Longitude: 111 degrees, 22 minutes, 14 seconds west.
Map unit in which located: 1720

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 20 inches
Depth to argillic horizon - 24 to 40 inches
Depth of solum - 40 to greater than 60 inches
Clay in particle-size control section, weighted average - 18 to 27 percent
Rock fragments in the particle-size control

section - 35 to 70 percent
Reaction - slightly acid to moderately acid

A horizons:
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3

E horizon:
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 2 through 4
Texture, less than 2 mm fraction - loam or silt loam
Rock fragments - 20 to 60 percent

E/B and B/E horizons (when present):
Hue - 7.5YR or 10YR
Value -
E material - 6 to 8 dry, 5 or 6 moist
B material - 5 or 6 dry, 4 or 5 moist
Chroma -
E material - 2 through 4 dry or moist
B material - 3 or 4 dry or moist
Texture, less than 2 mm fraction, mixed - loam or silt loam
Rock fragments - 35 to 80 percent

Bt or BC horizons:
Rock fragments - 35 to 80 percent

ABLA/VASC,CARU Koffgo Ecological Type

This ecological type is named for the occurrence of subalpine fir/grouse whortleberry habitat type pinegrass phase on Koffgo soils.

Environmental Setting
Landforms: dissected tablelands, volcanic domes and caldera floors
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 2 to 30 percent
Elevation: 5900 to 7000 feet
Average annual precipitation: 22 to 32 inches
Average annual temperature: 34 to 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Abies lasiocarpa/Vaccinium scoparium* habitat type, *Calamagrostis rubescens* phase.

Present communities: Douglas-fir/pinegrass community, Douglas-fir/grouse whortleberry community, lodgepole pine/grouse whortleberry c.t., lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., and communities dominated by non-native grasses or lodge pine and non-native grasses are commonly supported.

Vegetation Composition (N=16)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	75	15.7
Tree d.b.h. < 5 inches		
Pinus contorta	75	10.4
Pinus flexilis	6	0.5
Pseudotsuga menziesii	37	1.8
Shrubs		
Amelanchier alnifolia	6	1.0
Arctostaphylos uva-ursi	43	1.7
Chimaphila umbellata	6	5.0
Lonicera utahensis	31	1.3
Salix scouleriana	25	1.6
Salix spp.	6	0.5
Spiraea betulifolia	81	6.0
Vaccinium scoparium	75	21.0
Graminoids		
Agropyron sp.	6	0.5
Bromus sp.	6	3.0
Calamagrostis rubescens	100	11.8
Carex disperma	6	3.0
Carex geyeri	62	6.0
Carex sp.	6	10.0
Carex rossii	25	6.2
Festuca idahoensis	6	5.0
Poa sp.	6	2.0
Poa pratensis	12	1.0
Stipa columbiana	6	5.0
Trisetum spicatum	6	0.5
Forbs		
Achillea millefolium	6	0.5
Antennaria microphylla	12	5.5
Antennaria racemosa	6	3.0
Antennaria sp.	18	2.8
Arenaria congesta	6	2.0
Arnica cordifolia	81	3.1
Arnica parryi	6	0.5
Astragalus miser	6	10.0
Calochortus eurycarpus	6	0.5
Campanula rotundifolia	6	0.5

unknown Compositae	12	0.5
Corallorhiza wisteriana	6	0.5
Epilobium angustifolium	31	2.0
Erythronium grandiflorum	6	0.5
unknown forbs (may be more than one sp.)	6	1.0
Fragaria virginiana	6	1.0
Geranium viscosissimum	12	4.2
Hieracium albiflorum	37	1.3
Hieracium cynoglossoides	12	0.5
Hieracium sp.	6	1.0
unknown Liliaceae	6	0.5
Lupinus argenteus	37	2.0
Lupinus sp.	25	2.6
Osmorhiza chilensis	6	0.5
Potentilla arguta	6	0.5
Potentilla gracilis	6	0.5
Polygonum sp.	6	2.0
Pterospora andromedea	12	0.5
Senecio serra	6	1.0
Taraxacum officinale	6	0.5
Thalictrum occidentale	6	1.0
unknown forbs w/ > trace cover	6	2.0

Soil
The soils of this ecological type are represented by the Koffgo series.

Taxonomic class: Loamy-skeletal, mixed Dystric Cryochrepts

Typical pedon description
Koffgo silt loam, supporting a lodgepole pine/grouse whortleberry community type; on a 6 percent convex ridge; about 6360 feet elevation. (Colors are for dry soil unless otherwise stated.)

O--1 to 0 inches; Forest litter; needles, cones, and twigs.

A--0 to 4 inches; grayish brown (10YR 5/2) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky parting structure to weak medium granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium and coarse roots; many very fine irregular pores; 5 percent pebbles; moderately acid (pH 5.6); clear broken boundary.

Bw1--4 to 12 inches; light gray (10YR 7/2) gravelly silt loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine through coarse roots; common very fine irregular pores; 20 percent pebbles; moderately acid (pH 5.8); clear smooth boundary.

Bw2--12 to 18 inches; light brownish gray (10YR 6/2) gravelly silt loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few very fine through coarse roots; common very fine irregular pores; 25 percent pebbles; moderately acid (pH 5.8); clear smooth boundary.

2C1--18 to 50 inches; light gray (10YR 7/1) extremely cobbly sandy loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; few fine dark brown (7.5YR 4/3) moist clay films on undersides of rocks; 20 percent pebbles, 40 percent flaggs, and 20 percent channers; moderately acid (pH 6.0); diffuse wavy boundary.

2C2--50 to 60 inches; white (N 8/) fragmental rhyolite, gray (N 5/) moist, 20 percent pebbles, 70 percent flaggs, and 5 percent channers; few very fine and fine roots occuring in fractures of flag stones and hanging in voids; few fine dark brown (7.5YR 4/3) moist clay films on undersides of rocks and on top of rocks under silt like films; 5 percent irregular coarse voids between rock fragments; no fine earth material in voids.

Typical pedon location
Legal description: about 200 feet north and 500 feet west of the southeast corner of section 11, T. 13 N., R. 43 E., ID.
Latitude: 44 degrees, 27 minutes, 39 seconds north
Longitude: 111 degrees, 20 minutes, 35 seconds west.
Map unit in which located: 1700

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Ochric epipedon thickness - 2 to 14 inches
Depth to base of cambic horizon - 15 to 40 inches
Depth to fragmental material - 40 to greater than 60 inches

Clay content of the particle size control section - 7 to 14 percent
Base saturation - 5 to 60 percent

A horizons -
Value: 4 to 6 dry; 2 to 4 moist
Chroma: 1 to 3 dry and moist
Pebbles - 0 to 35 percent
Cobbles - 0 to 10 percent
Stones or boulders - 0 to 5 percent
Reaction - strongly acid or moderately acid

Bw and BC horizons -
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 2 to 4 dry and moist
Texture, less than 2 mm - loam, sandy loam, or silt loam
Rock fragments - 20 to 90 percent
Pebbles - 5 to 60 percent
Cobbles - 15 to 50 percent
Stones or boulders - 0 to 40 percent
Reaction - moderately acid or slightly acid

C1 horizon -
Hue - 10YR, 2.5Y or 5Y
Value - 6 or 7 dry, 5 or 6 moist
Chroma - 1 to 3 dry and moist
Rock fragments - 50 to 90 percent
Pebbles - 5 to 40 percent
Cobbles - 0 to 65 percent
Stones or boulders - 10 to 85 percent
Reaction - moderately acid to neutral

ABLA/VASC,CARU Rhylow Ecological Type

This ecological type is named for the occurrence of subalpine fir/grouse whortleberry habitat type, pinegrass phase on Rhylow soils.

Environmental Setting

Landforms: plateaus
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 15 to 35 percent
Elevation: 6600 to 7900 feet
Average annual precipitation: 25 to 35 inches
Average annual temperature: 29 to 39 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Abies lasiocarpa/Vaccinium scoparium* habitat type, *Calamagrostis rubescens* phase.

Present communities: The lodgepole pine/grouse whortleberry c.t., lodgepole pine/pinegrass c.t. is supported on lightly disturbed sites. Communities dominated by elk sedge or pinegrass are supported on clearcut and scarified areas.

Vegetation Composition (N=3)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	33	6.0
Pinus contorta	100	5.8
Tree d.b.h. < 5 inches		
Abies lasiocarpa	66	3.7
Pinus contorta	100	12.0
Shrubs		
Amelanchier alnifolia	33	1.0
Lonicera utahensis	100	4.1
Sorbus scopulina	33	0.5
Spiraea betulifolia	33	0.5
Vaccinium scoparium	66	35.5
Graminoids		
Agropyron sp.	33	0.5
Calamagrostis rubescens	66	9.5
Carex geyeri	100	28.3
Carex rossii	33	5.0
Danthonia intermedia	33	0.5
Elymus glaucus	33	0.5
Poa sp.	33	0.5
Forbs		
Achillea millefolium	66	1.0
Arnica cordifolia	33	0.5
Claytonia lanceolata	33	0.5
unknown Compositae	33	0.5
Corallorhiza sp.	33	0.5
Epilobium angustifolium	33	4.0
Geranium viscosissimum	33	1.0
Habenaria sp.	33	0.5
Hieracium sp.	33	0.5
Lupinus argenteus	33	2.0
Lupinus sp.	33	0.5
Osmorhiza chilensis	33	0.5
Pterospora andromedea	33	0.5
unknown forbs w/ > trace cover	33	2.0
unknown forbs (may be more than one sp.)	33	0.5

Soil
The soils of this ecological type are represented by the Rhylow series.

Taxonomic class: Loamy-skeletal, mixed Typic Cryumbrepts

Typical pedon description
Rhylow gravelly loam, supporting a subalpine fir/grouse blueberry h.t., pinegrass phase; on a 25 percent east facing slope; about 6880 feet elevation. (Colors are for air dry soil unless otherwise noted.)

O -- 1/2 to 0 inches; forest litter of needles and leaves; abrupt broken boundary.

A1 -- 0 to 4 inches; brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, common fine, few medium and coarse roots; many very fine irregular pores; 15 percent pebbles; moderately acid (pH 5.8); clear smooth boundary.

A2 -- 4 to 14 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine, common fine, few medium and coarse roots; many very fine irregular pores; 20 percent pebbles; slightly acid (pH 6.2); clear wavy boundary.

Bw -- 14 to 32 inches; yellowish brown (10YR 5/4) gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate coarse subangular blocky structure parting to moderate fine subangular blocky; soft, very friable, nonsticky and slightly plastic; common very fine, few fine, medium and coarse roots; many very fine tubular pores; 30 percent pebbles; moderately acid (pH 6.0); gradual wavy boundary.

2BC -- 32 to 50 inches; light yellowish brown (10YR 6/4) extremely cobbly sandy loam, yellowish brown (10YR 5/4) moist; moderate fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine, few fine, medium and coarse roots; many very fine tubular pores; 20 percent pebbles, 40 percent cobbles, and 10 percent stones or boulders; moderately acid (pH 5.9); diffuse wavy boundary.

2C -- 50 to 65 inches; pale brown (10YR 6/3) extremely cobbly sandy loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine tubular pores; 15 percent pebbles, 50 percent cobbles, 20 percent stones or boulders; moderately acid (pH 5.9).

Typical pedon location
Legal description: about 2200 feet west and 2400 feet south of the northeast corner of section 5, T. 10 N., R. 45 E., ID.
Latitude: 44 degrees, 13 minutes, 26 seconds north.
Longitude: 111 degrees, 9 minutes, 46 seconds west.
Map unit in which located: 1585

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Umbric epipedon thickness - 10 to 20 inches
Depth to very or extremely cobbly, flaggy or stony textures - 20 to 40 inches
Depth of solum - 40 to greater than 60 inches
Clay in particle size control section - 5 to 18 percent
Rock fragments in particle size control section, weighted average -35 to 60 percent
Reaction - moderately acid to slightly acid
Base saturation - 30 to 50 percent

O horizon:
Thickness - 1/2 to 2 inches thick
Form - Commonly forest litter of leaves, needles and stems on lightly or undisturbed pedons. On pedons where recent, heavy mechanical disturbance has occurred a root mat of pinegrass, elk sedge or both is common.

A horizons:
Hue - 10YR or 7.5YR
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3
Acid oxalate extractable Al plus 1/2 Fe - 0.2 to 0.8 percent
Volcanic glass in the 0.02 to 2.0 mm fraction -

less than 5 percent

Bw horizons:
Hue - 10YR, 7.5YR or 2.5Y
Value - 5 or 6 dry, 3 or 4 moist
Chroma - 3 or 4
Texture, less than 2 mm fraction - loam or sandy loam
Rock fragments - 15 to 60 percent, dominantly pebbles
Acid oxalate extractable Al plus 1/2 Fe - 0.1 to 0.6 percent
Volcanic glass in the 0.02 to 2.0 mm fraction - less than 5 percent

2BC horizons:
Hue - 10YR or 2.5Y
Value - 5, 6 or 7 dry; 4, 5 or 6 moist
Chroma - 2, 3 or 4
Texture, less than 2 mm fraction - sandy loam or loam
Rock fragments - 40 to 80 percent
Acid oxalate extractable Al plus 1/2 Fe - less than 0.4 percent
Volcanic glass in the 0.02 to 2.0 mm fraction - less than 5 percent

2C horizon:
Rock fragments - 80 to 90 percent, dominantly cobbles, flagstones or stones.

ABLA/VASC,VASC Dashiki Ecological Type

This ecological type is named for the occurrence of subalpine fir/grouse whortleberry habitat type, grouse whortleberry phase on Dashiki soils.

Environmental Setting
Landforms: plateaus
Parent Material: local alluvium derived from loess and tephra over residuum from mixed volcanic ash and obsidian lapilli
Slope range: 2 to 12 percent
Elevation: 7200 to 8300 feet
Average annual precipitation: 35 to 65 inches
Average annual temperature: 30 to 34 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Abies lasiocarpa/Vaccinium scoparium* habitat type, *Vaccinium scoparium* phase .

Present communities: The subalpine fir/grouse whortleberry h.t., grouse whortleberry phase and lodgepole pine/grouse whortleberry c.t. are supported on lightly or nondisturbed areas. The lodgepole pine/elk sedge c.t. is supported on regenerating clearcuts and in plantations. Communities dominated by elksedge are supported in recent clearcut and scarified areas.

Vegetation Composition (N=4)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	50	1.5
Pinus contorta	75	11.3
Tree d.b.h. < 5 inches		
Abies lasiocarpa	50	3.5
Pinus albicaulis	50	1.5
Pinus contorta	100	14.5
Pseudotsuga menziesii	25	4.0
Shrubs		
Vaccinium scoparium	100	20.7
Graminoids		
Calamagrostis rubescens	25	3.0
Carex geyeri	100	10.0
Carex rossii	25	1.0
Unknown grasses w/ >trace cover	25	1.0
Forbs		
Achillea millefolium	50	0.5
Antennaria sp.	25	0.5
Corallorhiza sp.	25	0.5
Epilobium angustifolium	50	0.5
Erigeron sp.	25	0.5
Hieracium albiflorum	25	0.5
Lupinus argenteus	50	0.7
unknown forbs w/ > trace cover	50	1.0

Soil
The soils of this ecological type are represented by the Dashiki series.

Taxonomic class: Ashy Typic Vitricryands

Typical pedon description
Dashiki silt loam, supporting a lodgepole pine/grouse whortleberry community type, on an undulating slope of 4 percent with a north aspect:

about 7820 feet elevation. (Colors are for air dry soil unless otherwise noted.)

O--1 to 0 inches; forest litter of needles, twigs and leaves; abrupt smooth boundary.

A1--0 to 3 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate very fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; trace pebbles and cobbles; strongly acid (pH 5.5); abrupt smooth boundary.

A2--3 to 9 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots, common coarse and medium roots, many very fine irregular pores; 5 percent pebbles, trace cobbles; moderately acid (pH 5.7); gradual smooth boundary.

Bw--9 to 31 inches; light yellowish brown (10YR 6/4) gravelly silt loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine roots; many very fine tubular and few fine tubular pores; 15 percent pebbles and trace cobbles; moderately acid (pH 5.9); clear wavy boundary.

2BC--31 to 37 inches; light brownish gray (10YR 6/2) gravelly loamy coarse sand, grayish brown (10YR 5/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots, many fine irregular pores; 30 percent pebbles, trace cobbles and stones; slightly acid (pH 6.5); clear broken boundary.

2C--37 to 75 inches; gray (2.5Y 5/0) stratified gravelly coarse sand to extremely gravelly coarse sand, dark gray (2.5Y 4/0) moist; single grain; loose, nonsticky and nonplastic; many fine and medium irregular pores; 20 to 80 percent pebbles, 10 percent cobbles, trace stones; slightly acid (pH 6.5).

Typical pedon location
Legal description: about 600 feet east and 200 feet north of the southwest corner of section 33, T. 12 N., R, 45 E., ID.
Latitude: 44 degrees, 19 minutes, 12 seconds north.
Longitude - 111 degrees, 8 minutes, 36 seconds west.
Map unit in which located: 1570

Range in characteristics
Profile:
Depth class - very deep
Drainage - well drained
Ochric epipedon thickness - 3 to 10 inches
Depth of solum - 30 to 40 inches
Depth to lithologic discontinuity - 28 to 35 inches
Depth of andic soil properties - 28 to 35 inches
Volcanic glass in the 0.02 to 2.0 mm fraction - greater than 50 percent

O horizon:
Thickness - 1/2 to 2 inches thick
Form - commonly forest litter of needles, twigs and leaves on lightly or undisturbed pedons. On pedons where recent, heavy mechanical disturbance has occurred a root mat of elk sedge is common.

A horizons:
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 to 4 dry or moist
Ammonium oxalate extractable Al plus 1/2 Fe - 0.4 to 1.0 percent
Bulk density - 0.65 to 1.00 grams per cubic centimeter
Phosphate retention - 35 to 60 percent
15-bar water (air dry samples) - 4 to 10 percent

Bw horizon :
Value - 3 or 4 moist, 5 or 6 dry
Chroma - 3 to 6 dry or moist
Texture, less than 2 mm fraction - loam or silt loam
Clay - 4 to 12 percent (field estimate)
Pebbles - 5 to 30 percent
Cobbles, stones or boulders - 0 to 5 percent
Reaction - strongly or moderately acid
Ammonium oxalate extractable Al plus 1/2 Fe - 0.4 to 1.0 percent
Bulk density - 0.80 to 1.00 grams per cubic centimeter
Phosphate retention - 35 to 60 percent
15-bar water (air dry sample) - 4 to 10 percent

2BC horizon:
Hue - 2.5Y or 10YR
Value - 6 or 7 dry, 5 or 6 moist
Chroma - 2 or 3 dry or moist

Pebbles - 5 to 50 percent
Cobbles, stones or boulders - 0 to 5 percent
Reaction - moderately or slightly acid
Ammonium oxalate extractable aluminum plus half the iron - less than 0.4 percent

2C Horizon:
Hue - 7.5YR to 5Y
Value - 3 to 6 dry, 2 to 5 moist
Chroma - 0 to 2 dry or moist
Pebbles - 10 to 90 percent
Cobbles - 0 to 10 percent
Stones or boulders - 0 to 5 percent
Reaction - moderately or slightly acid
Ammonium oxalate extractable aluminum plus half the iron - less than 0.4 percent

Alpine Sedge Meadow Fritz, high elevation Ecological Type

This ecological type is named for the occurrence of alpine sedge meadow communities on Fritz, high elevation soils.

Environmental Setting

Landforms: mountains
Parent Material: local alluvium derived from limestone and loess
Slope range: 4 to 30 percent
Elevation: 8400 to 10500 feet
Average annual precipitation: 16 to 22 inches
Average annual temperature: 37 to 43 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation

The potential natural vegetation of this ecological type is Alpine Sedge Meadow communities.

Present communities: Alpine sedge meadow communities are commonly supported. Communities dominated by the following species were observed: rock sedge, blackroot sedge, timberline bluegrass, Cusick's bluegrass and Idaho fescue.

Vegetation Composition (N=9)

Scientific name	Constancy %	Mean %Cover
Shrubs		
Artemisia frigida	11	0.5
Artemisia tridentata ssp. vaseyana	11	0.5
Ribes montigenum	11	0.5
Graminoids		
Agropyron (Pseudoroegneria) spicatum	33	7.5
Agropyron trachycaulum	22	0.3
Carex elynoides	55	21.7
Carex rupestris	33	5.3
Carex sp.	11	0.5
Festuca idahoensis	33	16.1
Festuca ovina	33	5.2
Hesperochloa kingii	22	0.5
Hordeum jubatum	11	0.5
Koeleria nitida (cristata) (macrantha)	11	0.5
Poa compressa	11	0.5
Poa cusickii	44	12.8
Poa rupicola	33	1.0
Poa sandbergii	11	18.0
Poa secunda	11	0.5
Poa sp.	33	7.0
Forbs		
Achillea millefolium	55	2.9
Agoseris glauca	44	4.9
Allium sp.	11	0.5
Antennaria alpina var. media	11	0.5
Antennaria luzuloides	22	0.5
Antennaria microphylla	44	2.2
Anemone multifida	22	0.1
Androsace septentrionalis	11	0.1
Aquilegia sp.	11	0.5
Arabis sp.	11	0.5
Arenaria congesta	22	0.5
Arenaria (Minuartia) nuttallii	33	0.3
Arenaria sp.	22	0.5
Arabis nuttallii	77	0.4
Astragalus kentrophyta	11	0.5
Besseya wyomingensis	33	0.5
Bupleurum americanum	33	0.5
Castilleja sp.	33	0.5
Cerastium arvense	33	0.6
unknown Compositae	22	0.3
Cymopteris bipinnatus (nivalis)	44	2.0
Delphinium glaucescens	11	4.0
Delphinium sp.	22	0.5
Dodecatheon sp.	11	0.5
Dodecatheon pulchellum	11	0.5
Draba crassifolia	11	0.5
Draba oligosperma	22	0.5

Draba sp.	11	0.5
Erigeron compositus	55	2.0
Erigeron sp.	11	0.5
Eritrichium nanum	55	0.3
Eriogonum ochrocephalum	11	0.5
Frasera speciosa	55	1.1
Geum triflorum	33	0.6
Haplopappus (Stenotus) stenophyllus	11	0.5
Ivesia tweedyii	55	1.0
Lesquerella multiceps	11	0.5
Linum perenne (lewisii)	33	0.5
Lloydia serotina	33	0.5
Lomatium cous	33	0.5
Lupinus lepidus	11	0.5
Mertensia viridis (lanceolata var. nivalis)	22	0.5
Oxytropis lagopus	22	0.5
Oxytropis sericea	88	1.2
Oxytropis viscida	33	0.5
Pedicularis parryi	55	0.6
Phacelia hastata	11	0.5
Phacelia heterophylla	11	0.5
Phlox hoodii	33	0.8
Phlox multiflora	33	1.3
Phlox pulvinata	11	1.0
Polygonum bistortoides	11	0.5
Potentilla diversifolia	33	0.6
Potentilla ovina	100	3.5
Ranunculus glabberimus	11	0.5
Saxifraga rhomboidea	33	0.5
Senecio canus	44	0.5
Senecio integerrimus	11	0.5
Sedum lanceolatum	55	0.5
Senecio streptanthifolius var. brevifolius	11	0.1
Stellaria longipes var. altocaulis	11	0.5
Taraxacum officinale	22	0.5
Townsendia condensata	11	0.5
Townsendia montana (alpigena)	11	0.5
Townsendia parryi	22	0.5
Townsendia sp.	11	0.5
Trifolium haydenii	22	0.5
Trifolium sp.	11	0.5
unknown Umbelliferae	22	0.3

Soil
The soils of this ecological type are represented by the Fritz series, high elevation phase.

Taxonomic class: Loamy-skeletal, carbonatic Calcic Cryoborolls

Typical pedon description
Fritz, high elevation gravelly silt loam; supporting a alpine sedge meadow community; on a 20 percent slope with a northwest aspect at 9880 feet elevation. (Colors are for dry soil unless otherwise stated.)

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) gravelly silt loam, black (10YR 2/1) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine roots; many very fine irregular pores; slightly effervescent; common thin lime pendants on underside of rock fragments; 25 percent pebbles, 5 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

A2—3 to 12 inches; brown (10YR 5/3) very gravelly silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine roots; many very fine irregular pores; common thick lime pendants and few thin silica pendants on underside of rock fragments; strongly effervescent; 30 percent pebbles, 20 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bk—12 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and slightly plastic; common very fine roots; many very fine and few fine tubular pores; many thick lime pendants and common thin silica pendants on underside of rock fragments; many very fine threads and seams of soft powdery lime in matrix; violently effervescent; 60 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.0).

Typical pedon location
Legal description: about 1150 feet north and 1200 feet west of the southeast corner section 12, T. 12 N., R. 29 E., ID.
Latitude: 44 degrees, 22 minutes, 58 seconds north.
Longitude: 112 degrees, 56 minutes, 18 seconds west.
Map Unit in which located: 1130

Range in characteristics
Profile:

Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 8 to 15 inches
Depth to secondary carbonates - 0 to 15 inches
Clay in particle size control section, weighted average - 8 to 18 percent
Rock fragments in particle size control section, weighted average - 40 to 85 percent, dominantly pebbles.
Calcium carbonate equivalent in the mineralogy control section - greater than 40 percent in the less than 20 mm size fraction
Reaction - slightly alkaline or moderately alkaline

A horizons
Hue - 10YR or 2.5Y
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry or moist
Effervescence - slightly effervescent or strongly effervescent

Bk or Bkq horizons
Hue - 10YR or 2.5Y
Value - 5 through 8 dry, 4 through 6 moist
Chroma - 1 through 4 dry or moist
Texture, less than 2 mm fraction - loam or sandy loam
Rock fragments - 60 to 90 percent

ARARA/FEID Mountainboy Ecological Type

This ecological type is named for the occurrence of gray low sagebrush/Idaho fescue habitat type on Mountainboy soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: fan remnants
Parent Material: alluvium derived from limestone and loess
Slope range: 2 to 8 percent
Elevation: 7350 to 7700 feet
Average annual precipitation: 12 to 14 inches
Average annual temperature: 37 to 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Artemisia arbuscula* ssp. *arbuscula/Festuca idahoensis* habitat type.

Present communities: The gray low sagebrush/Idaho fescue h.t. or communities dominated by gray low sagebrush and Sandburg bluegrass or prairie Junegrass are commonly supported.

Vegetation Composition (N=1)

Scientific name	Constancy %	Mean %Cover
Shrubs		
Artemisia arbuscula ssp. arbuscula	100	4.0
Graminoids		
Agropyron (Pseudoroegneria) spicatum	100	0.5
Festuca idahoensis	100	3.0
Koeleria nitida (cristata) (macrantha)	100	3.0
Poa sandbergii	100	2.0
Forbs		
Arenaria congesta	100	0.5
Astragalus purshii	100	0.5
Castilleja sp.	100	0.5
unknown Compositae	100	0.5
Cymopteris acaulis	100	0.5
Draba sp.	100	0.5
Erigeron compositus	100	0.5
Haplopappus (Stenotus) stenophyllus	100	12.0
Lesquerella carinata	100	0.5
Phlox hoodii	100	1.0

Soil
The soils of this ecological type are represented by the Mountainboy series.

Taxonomic class: Loamy-skeletal, carbonatic, shallow Duric Cryoborolls

Typical pedon description
Mountainboy gravelly silt loam; supporting a low sagebrush/bluebunch wheatgrass h.t., rangeland; on a 2 percent slope with an east aspect. Colors are for dry soil unless otherwise noted.)

A--0 to 6 inches; brown (10YR 5/3) gravelly silt loam, dark brown (10YR 3/3) moist; weak fine

subangular blocky structure parting to weak fine granular; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots, common medium and coarse roots; many very fine and fine irregular pores; carbonate coats less than 1 mm thick on underside of rock fragments; strongly effervescent; 20 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary.

AB--6 to 11 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine and coarse roots, few medium roots; many very fine and fine irregular pores; carbonate coats less than 1 mm thick on the underside of rock fragments; strongly effervescent; 25 percent pebbles; moderately alkaline (pH 8.1); clear wavy boundary.

Bk--11 to 16 inches; light gray (10YR 7/2) very gravelly loam, pale brown (10YR 6/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine and coarse roots; common very fine and fine irregular pores; carbonate coats 1 mm thick on rock fragments; violently effervescent; 40 percent pebbles; moderately alkaline (pH 8.4); abrupt wavy boundary.

2Bkq--16 to 19 inches; light gray (10YR 7/2) weakly cemented extremely gravelly coarse sandy loam, light yellowish brown (10YR 6/4) moist; massive; hard, firm, nonsticky and nonplastic; common fine and medium irregular pores; few very fine roots; 60 percent of horizon is weakly cemented by carbonates and silica, 40 percent is noncemented; violently effervescent; 65 percent pebbles; very strongly alkaline (pH 9.1); abrupt wavy boundary.

2Bkqm--19 to 20 inches; light gray (10YR 7/2) strongly cemented duripan, light yellowish brown (10YR 6/4) moist; root mat on top of pan; abrupt wavy boundary.

2Bkq'--20 to 60 inches; variegated extremely gravelly loamy coarse sand; single grain; many fine and medium irregular pores; carbonate and silica pendants 1 to 2 mm thick on underside of rock fragments; violently effervescent; 80 percent pebbles, 5 percent cobbles; very strongly alkaline (pH 9.1).

Typical pedon location
Legal description: about 1900 feet east and 500 feet south of the northwest corner section 5, T. 11 N., R. 28 E., ID.
Latitude: 44 degrees, 19 minutes, 13 seconds north.
Longitude: 113 degrees, 8 minutes, 53 seconds west.
Map Unit in which located: MyB -- Mountainboy gravelly silt loam, 2 to 8 percent slopes (Custer-Lemhi Area Soil Survey).

Range in characteristics
Profile:
Depth class - shallow
Drainage class - well drained
Depth to duripan - 15 to 20 inches
Thickness of duripan - 1/4 to 2 inches thick
Clay in particle-size control section, weighted average - 10 to 18 percent
Rock fragments in particle-size control section, weighted average - 35 to 65 percent
Calcium carbonate equivalent in particle-size control section, weighted average - 55 to 65 percent

A horizons:
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry or moist

AB and BK horizons:
Value - 5 through 7 dry, 3 through 6 moist
Chroma - 2 or 3 dry and moist
Texture, less than 2mm fraction - loam or silt loam
Rock fragments - 15 to 60 percent

2Bkq horizon:
Value - 6 or 7 dry or moist
Chroma - 2 through 4 dry or moist

2Bkq' horizon:
Value - 5 through 7 dry or moist
Chroma - 2 through 4 dry or moist
Texture, less than 2 mm fraction - loamy coarse sand or coarse sandy loam
Rock fragments - 65 to 85 percent

ARNO4/AGSP Simeroi Ecological Type

This ecological type is named for the occurrence of black sagebrush/bluebunch wheatgrass habitat type on Simeroi soils.

Environmental Setting

Landforms: foothills
Parent Material: colluvium and local alluvium derived from limestone and loess
Slope range: 30 to 50 percent
Elevation: 5800 to 8800 feet
Average annual precipitation: 10 to11 inches
Average annual temperature: 38 to 40 degrees F.
Temperature regime: frigid
Moisture regime: aridic bordering on xeric

Vegetation

The potential natural vegetation of this ecological type is *Artemisia nova/Agropyron spicatum* habitat type.

Present communities: The black sagebrush/bluebunch wheatgrass h.t., curlleaf mountain mahogany/bluebunch wheatgrass community or communities dominated by curlleaf mountain mahogany are commonly supported.

Vegetation Composition (N=7)

Scientific name	Constancy %	Mean %Cover
Shrubs		
Artemisia arbuscula ssp. arbuscula	28	0.7
Artemisia arbuscula ssp. longiloba	28	0.7
Artemisia frigida	42	0.5
Artemisia nova	100	10.1
Artemisia rigida	14	0.5
Artemisia tridentata ssp. tridentata	14	0.5
Chrysothamnus viscidiflorus	85	0.5
Mosses		
Mosses	14	0.5
Graminoids		
Agropyron (Pseudoroegneria) spicatum	100	5.3
Agropyron trachycaulum	14	0.5
Hesperochloa kingii	28	0.5
Oryzopsis hymenoides	57	0.6
Poa sandbergii	28	0.5
Poa sp.	42	0.5
Forbs		
Allium acuminatum	14	0.5
Arabis holboellii	28	0.5
Arabis sp.	14	0.1
Arenaria congesta	28	0.3
Arenaria sp.	14	0.5
Aster sp.	14	0.1
Astragalus cibarius	14	0.5
Astragalus purshii	28	0.5
Astragalus sp.	28	0.5
Balsamorhiza sagittata	14	0.5
Castilleja angustifolia	42	0.5
Castilleja sp.	14	0.5
Cirsium sp.	14	0.5
Comandra umbellata	28	0.5
unknown Compositae	28	0.1
Coryphantha missouriensis	14	0.5
Crepis sp.	14	0.5
unknown Cruciferae	42	0.5
Cymopteris acaulis	14	0.5
Erigeron compositus	14	0.5
Erigeron sp.	14	0.5
Eriogonum sp	28	0.5
Eriogonum ovalifolium	28	0.1
Erysimum sp.	14	0.5
Gilia aggregata	14	0.5
Haplopappus (Stenotus) stenophyllus	85	0.4
Linum perenne (lewisii)	42	0.3
Lithospermum ruderale	14	0.5
Lomatium triternatum	14	0.5
Lupinus sp.	14	0.5
Oenothera caespitosa (cespitosa)	14	0.5
Opuntia polyacantha	42	0.5
Orobanche sp.	28	0.1
Penstemon aridus	14	0.5
Penstemon eriantherus	14	0.5
Penstemon gracilis	28	0.5
Penstemon sp.	28	0.5
Phlox caespitosa	28	0.5
Phlox hoodii	85	0.5
Polygonum sp.	14	0.5
Sedum lanceolatum	14	0.5
Tragopogon dubius	14	0.5

Soil

The soils of this ecological type are represented by the Simeroi series.

Taxonomic class: Loamy-skeletal, carbonatic, frigid Xeric Haplocalcids

Typical pedon description
Simeroi very gravelly silt loam; supporting a black sagebrush/bluebunch wheatgrass habitat type, on a 55 percent slope with a south aspect at 6800 feet elevation. (Colors are for dry soil unless otherwise noted.)

A1--0 to 3 inches; brown (10YR 5/3) very gravelly silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and few fine roots; many very fine irregular pores; few hard pendants of carbonates and common coats of soft powdery lime on underside of rock fragments; strongly effervescent; 35 percent pebbles, 5 percent cobbles, trace stones; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2--3 to 11 inches; pale brown (10YR 6/3) very gravelly silt loam, brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and few fine roots; many very fine irregular pores; many hard pendants of carbonates and continuous coats of soft powdery lime on underside of rock fragments; violently effervescent; 35 percent pebbles, 10 percent cobbles, trace stones; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bk1--11 to 24 inches; very pale brown (10YR 8/3) extremely gravelly sandy loam, light yellowish brown (10YR 6/4) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and slightly plastic; common very fine roots; many very fine irregular pores; continuous coats of soft powdery lime on rock fragments and many fine (less than 5 mm) masses of soft powdery lime in matrix; violently effervescent; 40 percent pebbles, 15 percent cobbles, 5 percent stones; moderately alkaline (pH 8.2); gradual smooth boundary.

Bk2--24 to 60 inches; very pale brown (10YR 7/3) extremely gravelly sandy loam, brown (10YR 5/3) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and slightly plastic; common very fine roots; many very fine irregular pores; common coats of soft powdery lime on underside of rock fragments and common fine (less than 5 mm) masses of soft powdery lime in matrix; violently effervescent; 40 percent pebbles, 15 percent cobbles, 5 percent stones; moderately alkaline (pH 8.2).

Typical pedon location
Legal description: about 1000 feet north and 1000 feet east of the southwest corner of sec. 21, T. 9 N., R. 32 E., ID.
Latitude: 44 degrees, 5 minutes, 25 seconds north.
Longitude: 111 degrees, 42 minutes, 35 seconds west.
Map unit in which located: 1126

Range in characteristics

Profile:
Depth class - very deep
Drainage class - well drained
Clay in particle-size control section, weighted average - 4 to 12 percent
Calcium carbonate equivalent in the particle-size control section - 40 to 70 percent

A horizon:
Hue - 2.5Y or 10YR
Value - 5 through 7 dry, 3 through 5 moist
Chroma - 2 or 3 dry or moist
Reaction - slightly alkaline or moderately alkaline
Effervescence - slightly effervescent through violently effervescent
Rock fragments - 15 to 50 percent

Bk or Bkq horizons:
Hue - 2.5Y or 10YR
Value - 6 through 8 dry, 4 through 6 moist
Chroma - 2 or 3 dry, 3 or 4 moist
Rock fragments - 40 to 85 percent
Reaction - moderately alkaline or strongly alkaline

ARTRV/FEID Monida Ecological Type

This ecological type is named for the occurrence of mountain big sagebrush/Idaho fescue habitat type on Monida soils.

Environmental Setting
Landforms: mountains, foothills, fan remnants and moraines
Parent Material: local alluvium or colluvium derived from calcareous siltstone, sandstone

and loess
Slope range: 4 to 40 percent
Elevation: 6000 to 9600 feet
Average annual precipitation: 14 to 40 inches
Average annual temperature: 37 to 40 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation
The potential natural vegetation of this ecological type is *Artemisia tridentata* ssp. *vaseyana/Festuca idahoensis* habitat type.

Present communities: The mountain big sagebrush/Idaho fescue h.t. and mountain big sagebrush/bluebunch wheatgrass community are commonly supported. Communities dominated by Idaho fescue or spineless horsebrush and bluebunch wheatgrass are also present.

Vegetation Composition (N=12)

Scientific name	Constancy %	Mean %Cover
Shrubs		
Artemisia arbuscula ssp. arbuscula	16	0.7
Artemisia frigida	8	0.5
Artemisia nova	16	0.7
Artemisia tridentata ssp. vaseyana	91	16.6
Chrysothamnus nauseosus	8	3.0
Chrysothamnus viscidiflorus	58	0.5
Rosa sp.	8	0.5
Symphoricarpos oreophilus	33	0.5
Tetradymia canescens	58	2.5
Graminoids		
Agropyron dasystachyum	8	0.5
Agropyron (Pseudoroegneria) spicatum	66	2.0
Agropyron trachycaulum	25	0.5
Bromus anomalus	8	1.0
Bromus carinatus	8	4.0
Bromus ciliatus	8	0.5
Carex geyeri	8	3.0
Carex petasata	41	0.6
Carex rossii	8	2.0
Carex sp.	33	0.5
Carex vallicola	16	2.2
Danthonia intermedia	8	8.0
Elymus cinereus	8	5.0
Festuca idahoensis	100	17.0
Hesperchloa kingii	8	5.0
Koeleria nitida (cristata) (macrantha)	66	1.0
Poa sp.	33	0.5
Poa ampla	16	0.7
Poa cusickii	8	2.0
Poa pratensis	16	2.0
Poa sandbergii	58	3.2
Stipa columbiana	8	2.0
Stipa comata	16	3.5
Stipa sp.	8	0.5
Trisetum spicatum	8	0.5
Forbs		
Achillea millefolium	83	0.5
Agoseris glauca	8	0.1
Allium cernuum	8	0.5
Allium sp.	8	0.5
Antennaria microphylla	100	1.1
Arabis drummondii	8	0.5
Arabis holboellii	8	0.5
Arabis sp.	50	0.3
Arenaria congesta	8	0.5
Arenaria sp.	25	0.5
Aster perelegans	8	0.5
Astragalus purshii	8	0.5
Astragalus sp.	50	0.4
Balsamorhiza sagittata	16	0.5
Besseya wyomingensis	25	0.5
unknown Caryophyllaceae	8	0.5
Castilleja longispica	8	0.5
Castilleja sp.	25	0.5
Cirsium scariosum	8	0.5
Clematis hirsutissima	8	3.0
Comandra umbellata	8	0.5
unknown Compositae	16	0.5
Crepis sp.	25	0.5
unknown Cruciferae	25	0.3
Cymopteris bipinnatus (nivalis)	25	0.5
Dodecatheon pulchellum	16	0.5
Draba sp.	8	0.5
Epilobium angustifolium	8	1.0
Erigeron compositus	8	0.5
Erigeron sp.	8	0.5
Eriogonum sp	16	0.5
Eriogonum umbellatum	58	1.0
Fritillaria atropurpurea	8	0.5
Galium boreale	8	1.0
Geum triflorum	75	0.4
Geranium viscosissimum	33	1.2
Haplopappus (Stenotus) stenophyllus	8	0.5
Heuchera sp.	25	0.5
Helianthella uniflora	25	13.3

Iris missouriensis	8	0.5
Linum perenne (lewisii)	8	1.0
Lithospermum ruderale	16	0.5
Lomatium sp.	8	0.5
Lupinus argenteus	8	1.0
Lupinus caudatus	8	0.5
Lupinus lepidus	50	0.8
Lupinus sp.	16	0.7
Mertensia viridis (lanceolata var. nivalis)	16	0.5
Microseris sp.	8	0.5
Microseris troximoides	16	0.5
Penstemon sp.	8	0.5
Phlox hoodii	33	0.8
Phlox longifolia	8	0.5
Phlox sp.	16	1.7
Potentilla glandulosa	16	0.5
Potentilla gracilis	33	1.0
Ranunculus glabberimus	8	0.5
Ranunculus glabberimus v. ellipticus	8	0.5
Sedum sp.	8	0.5
Sedum lanceolatum	8	0.5
Senecio sp.	8	0.5
Solidago multiradiata	8	0.5
Taraxacum officinale	25	0.5
Townsendia montana (alpigena)	8	0.5
Viola sp.	8	0.5
Zigadenus venenosus	33	0.5

Soil
The soils of this ecological type are represented by the Monida series.

Taxonomic class: Fine-loamy, mixed Argic Cryoborolls

Typical pedon description
Monida silt loam; supporting a mountain big sagebrush/Idaho fescue habitat type; on a 17 percent slope with a south aspect at 6625 feet elevation. (Colors are for dry soil unless otherwise noted.)

A1–0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam, very dark brown (10YR 2/2) moist; weak medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; mildly alkaline (pH 7.4); abrupt smooth boundary.

A2–2 to 7 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate very coarse subangular blocky structure parting to medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine and medium tubular pores; mildly alkaline (pH 7.6); clear smooth boundary.

Bt1–7 to 12 inches; grayish brown (2.5Y 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate very coarse subangular blocky structure parting to fine subangular blocky; hard, firm, slightly sticky and plastic; few very fine and common fine roots; few fine and medium tubular pores; many distinct clay films (10YR 2/2 moist) on faces of ped and lining pores; mildly alkaline (pH 7.6); clear smooth boundary.

Bt2–12 to 27 inches; light olive brown (2.5Y 5/3) clay loam, olive brown (2.5Y 4/3) moist; strong medium prismatic structure parting to medium subangular blocky; hard, friable, slightly sticky and plastic; few very fine and medium, and common fine roots; common fine tubular pores; many distinct clay films (10YR 4/2 moist) on ped faces and lining pores; mildly alkaline (pH 7.6); gradual smooth boundary.

Btk–27 to 38 inches; pale yellow (2.5Y 7/3) loam, light olive brown (2.5Y 5/3) moist; weak coarse prismatic structure parting to moderate coarse subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many fine tubular pores; common distinct clay films (2.5Y 4/3) on faces of ped and lining pores; strongly effervescent; moderately alkaline (pH 8.0); gradual smooth boundary.

Bk–38 to 60 inches; pale yellow (2.5Y 7/3) loam, light olive brown (2.5Y 5/3) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many fine tubular pores; common filaments and few fine (less than 5 mm) masses of soft powdery lime in matrix; violently effervescent; moderately alkaline (pH 8.0); gradual smooth boundary.

Typical pedon location
Legal description: about 2225 feet south and 450 feet west of the northeast corner of sec. 7, T. 13

N., R. 37 E., ID.
Latitude: 44 degrees, 28 minutes, 08 seconds north.
Longitude: 112 degrees, 08 minutes, 33 seconds west.
Map unit in which located: 1145

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 7 to 16 inches.
Depth to uniformly calcareous material - 10 to 40 inches
Depth to base of argillic horizon - 15 to 50 inches
Depth to calcic horizon - 15 to 50 inches
Clay in particle size control section, weighted average - 18 to 35 percent
Fine sand or coarser in the particle-size control section, weighted average - 15 to 35 percent

A horizons:
Hue - 2.5Y through 7.5YR
Value - 3 through 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry or moist
Reaction - neutral to slightly alkaline

Bt horizons:
Hue - 2.5Y through 7.5YR
Value - 5 through 7 dry, 3 through 6 moist
Chroma - 2 through 6 dry or moist
Texture, less than 2 mm fraction - silt loam, silty clay loam or clay loam
Rock fragments - 0 to 25 percent
Reaction - slightly alkaline or moderately alkaline

Btk horizon:
Hue - 2.5Y through 7.5YR
Value - 5 through 8 dry, 4 through 6 moist
Chroma - 1 through 3 dry, 2 through 4 moist
Texture, less than 2 mm fraction - loam, silt loam, silty clay loam or clay loam
Rock fragments - 0 to 35 percent
Effervescence - slightly effervescent or strongly effervescent
Calcium carbonate equivalent - 5 to 20 percent

Bk horizon:
Hue - 2.5Y through 7.5YR
Value - 5 through 8 dry, 4 through 6 moist
Chroma - 1 through 3 dry, 2 through 4 moist
Texture, less than 2 mm fraction - loam or silt loam
Rock fragments - 0 to 35 percent
Effervescence - strongly effervescent or violently effervescent
Calcium carbonate equivalent - 15 to 40 percent

ARTRV/FEID Raynoldson Ecological Type

This ecological type is named for the occurrence of mountain big sagebrush/Idaho fescue habitat type on Raynoldson soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: fan remnants
Parent Material: mixed alluvium
Slope range: 2 to 15 percent
Elevation: 6600 to 7400 feet
Average annual precipitation: 18 to 24 inches
Average annual temperature: 34 to 40 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation
The potential natural vegetation of this ecological type is *Artemisia tridentata* ssp. *vaseyana/Festuca idahoensis* habitat type.

Present communities: The mountain big sagebrush/Idaho fescue h.t. is commonly supported.

Vegetation Composition (N=1)

Scientific name	Constancy %	Mean %Cover
Shrubs		
Artemisia tripartita	100	2.0
Artemisia tridentata ssp. vaseyana	100	0.5
Graminoids		
Agropyron trachycaulum	100	3.0
Carex douglasii	100	1.0
Carex filifolia	100	20.0
Carex petasata	100	0.5
Festuca idahoensis	100	25.0
Festuca scabrella	100	4.0
Melica spectabilis	100	2.0

Forbs

Achillea millefolium	100	1.0
Agoseris glauca	100	0.5
Antennaria microphylla	100	1.0
Arabis sp.	100	0.5
unknown Compositae	100	3.0
Eriogonum heracleoides	100	2.0
Eriogonum umbellatum	100	5.0
Fritillaria atropurpurea	100	0.5
Lomatium triternatum	100	0.5
Lupinus sp.	100	0.5
Potentilla gracilis	100	0.5
Senecio integerrimus	100	0.5
Viola sp.	100	0.5
Zigadenus venenosus	100	0.5

Soil

The soils of this ecological type are represented by the Raynoldson series.

Taxonomic class: Loamy-skeletal, mixed Calcic Pachic Cryoborolls

Typical pedon description

Raynoldson gravelly loam supporting an mountain big sagebrush/Idaho fescue habitat type, rangeland; on a 10 percent slope; about 6700 feet elevation. (Colors are for dry soil unless otherwise stated.)

A1--0 to 4 inches; brown (10YR 4/3) gravelly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 15 percent pebbles and 2 percent stones; neutral (pH 6.6); clear smooth boundary.

A2--4 to 16 inches; brown (10YR 4/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium and coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 10 percent pebbles, 5 percent cobbles and 5 percent stones; neutral (pH 6.8); clear smooth boundary.

Bw--16 to 29 inches; brown (10YR 4/3) very gravelly loam, very dark brown (10YR 3/3) moist; weak medium and coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 25 percent pebbles, 10 percent cobbles and 5 percent stones; neutral (pH 7.0); clear wavy boundary.

2Bk1--29 to 44 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; many thin lime coats on sides and undersides of rock fragments; slightly effervescent in spots; 45 percent pebbles, 15 percent cobbles and 10 percent stones; moderately alkaline (pH 8.0); clear wavy boundary.

2Bk2--44 to 60 inches; variegated extremely gravelly loamy sand; massive; loose, nonsticky and nonplastic; few very fine roots; many very fine and fine irregular pores; continuous thin lime coats on sides and undersides of rock fragments; strongly effervescent; 55 percent pebbles, 20 percent cobbles and 5 percent stones; moderately alkaline (pH 8.0)

Typical pedon location

Legal description: approximately 2 miles southeast of Raynoldson pass; about 2100 feet east and 2300 feet north of the southwest corner of section 24, T. 16 N., R 43 E., ID.
Latitude: 44 degrees North, 41 minutes, 48 seconds
Longitude: 111 degrees West, 26 minutes, 55 seconds
Map unit in which located: 1110

Range in characteristics

Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 16 to 30 inches.
Depth to calcium carbonate accumulation - 16 to 30 inches.
Reaction - neutral to moderately alkaline
Particle size control section clay content - averages 4 to 12 percent.

A horizons:
Hue - 10YR or 7.5YR
Value - 3 or 4 dry, 2 or 3 moist
Chroma - 2 to 4 dry, 1 to 3 moist

Bw horizons:
Value - 4 to 6 dry, 2 or 3 moist
Chroma - 2 to 6 dry, 2 or 3 moist
Rock fragments - 20 to 70 percent

Clay content- 8 to 12 percent

Bk horizons:
Texture - very gravelly sandy loam, extremely gravelly loamy sand or extremely gravelly sandy loam
Rock fragments - 45 to 60 percent pebbles
10 to 30 percent cobbles and stones
Clay content - 2 to 12 percent
Calcium carbonate equivalent - 5 to 15 percent

ARTRV/FEID Trude Ecological Type

This ecological type is named for the occurrence of mountain big sagebrush/Idaho fescue habitat type on Trude soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: outwash plains
Parent Material: mixed alluvium
Slope range: 0 to 4 percent
Elevation: 6100 to 6400 feet
Average annual precipitation: 24 to 32 inches
Average annual temperature: 36 to 40 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation
The potential natural vegetation of this ecological type is *Artemisia tridentata* ssp. *vaseyana/Festuca idahoensis* habitat type.

Present communities: The mountain big sagebrush/Idaho fescue h.t. or communities dominated by mountain big sagebrush or gray low sagebrush and bluebunch wheatgrass or mesic forbs are commonly supported.

Vegetation Composition (N=2)

Scientific name	Constancy %	Mean %Cover
Shrubs		
Artemisia arbuscula ssp. arbuscula	50	10.0
Artemisia tridentata ssp. vaseyana	50	15.0
Purshia tridentata	50	2.0
Graminoids		
Carex sp.	100	1.0
Carex vallicola	50	1.0
Danthonia unispicata	50	0.5
Festuca idahoensis	50	8.0
Koeleria nitida (cristata) (macrantha)	50	0.5
Poa sp.	50	0.5
Stipa columbiana	50	5.0
Forbs		
Achillea millefolium	50	0.5
Antennaria microphylla	50	1.0
Antennaria sp.	50	3.0
Arenaria congesta	50	0.5
Arenaria kingii	50	0.5
Claytonia lanceolata	50	0.5
Dodecatheon pulchellum	100	0.5
Eriogonum heracleoides	50	8.0
Eriogonum sp	50	3.0
Eriogonum umbellatum	50	3.0
Fritillaria pudica	100	0.7
Lomatium sp.	50	2.0
Lomatium triternatum	50	0.5
Lupinus argenteus	50	1.0
Phlox multiflora	50	2.0
Polygonum douglasii	50	2.0
unknown forbs w/ > trace cover	50	7.0

Soil
The soils of this ecological type are represented by the Trude series.

Taxonomic class: Sandy-skeletal mixed Dystric Cryochrepts

Typical pedon description
Trude gravelly sandy loam supporting mountain big sagebrush, bluebunch wheatgrass community type; on a 1 percent slope; about 6290 feet elevation. (Colors are for dry soil unless otherwise noted.)

A-- 0 to 8 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular and few fine tubular pores; 20 percent pebbles; moderately acid (pH 6.0); clear smooth boundary.

Bw--8 to 21 inches; light yellowish brown (10YR 6/4) gravelly coarse sandy loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine, few medium roots; few fine irregular pores; 30 percent pebbles; moderately acid (pH 6.0); gradual wavy boundary.

2C--21 to 60 inches; variegated stratified coarse sand and extremely gravelly coarse sand, few bands of reddish yellow (7.5YR 6/6) iron stains; single grain; loose; few very fine and fine roots; many coarse irregular pores; 60 percent pebbles; slightly acid (pH 6.2).

Typical pedon location
Legal description: about 2000 feet north and 1000 feet west of the southeast corner of sec. 1, T.12N., R.43E., ID.
Latitude: 44 degrees, 23 minutes, 40 seconds north.
Longitude: 111 degrees, 19 minutes, 05 seconds west.
Map unit in which located: 1400

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Depth to sand and gravel - 17 to 25 inches
Rock fragments in the particle size control section averages - 35 to 60 percent
Reaction - moderately acid to neutral
Base saturation - 30 to 50 percent

A horizons:
Value - 4 to 6 dry, 2 or 3 moist
Chroma - 3 or 4 dry or moist

Bw horizons:
Value - 5 or 6 dry, 2 to 4 moist
Chroma - 3 or 4 dry or moist
Texture - gravelly loam, gravelly coarse sandy loam
Rock fragments - 15 to 55 percent

C horizons:
Texture - stratified coarse sand through extremely gravelly coarse sand
Rock fragments - 35 to 70 percent

ARTRV/FEID Zeale Ecological Type

This ecological type is named for the occurrence of mountain big sagebrush/Idaho fescue habitat type on Zeale soils.

Environmental Setting
Landforms: foothills, fan remnants and moraines
Parent Material: alluvium derived from limestone and loess
Slope range: 4 to 20 percent
Elevation: 6800 to 8400 feet
Average annual precipitation: 11 to 16 inches
Average annual temperature: 35 to 42 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation
The potential natural vegetation of this ecological type is *Artemisia tridentata* ssp. *vaseyana/Festuca idahoensis* habitat type.

Present communities: The mountain big sagebrush/Idaho fescue h.t. and mountain big sagebrush/bluebunch wheatgrass community are commonly supported. Communities dominated by Idaho fescue or spineless horsebrush and bluebunch wheatgrass are also represented.

Vegetation Composition (N=14)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. < 5 inches		
Juniperus scopulorum	7	0.5
Shrubs		
Artemisia frigida	21	0.5
Artemisia nova	14	1.2
Artemisia rigida	7	0.5
Artemisia tridentata ssp. vaseyana	100	12.8
Chrysothamnus viscidiflorus	64	0.5
Potentilla fruticosa	7	0.5
Symphoricarpos oreophilus	21	0.5
Tetradymia canescens	71	0.5
Mosses		
Mosses	7	0.5
Graminoids		
Agropyron sp.	14	17.5
Agropyron	85	7.4

(Pseudoroegneria) spicatum		
Agropyron trachycaulum	21	0.5
Carex sp.	21	0.6
Festuca idahoensis	92	20.7
Hesperochloa kingii	14	0.5
Koeleria nitida (cristata) (macrantha)	50	0.5
Poa ampla	7	0.5
Poa sandbergii	50	2.6
Poa sp.	28	0.5
Forbs		
Achillea millefolium	85	0.5
Agoseris glauca	28	0.6
Allium sp.	42	0.5
Antennaria microphylla	78	1.1
Antennaria sp.	7	2.0
Arabis holboellii	7	0.5
Arabis nuttallii	14	0.5
Arabis sp.	35	0.4
Arenaria congesta	7	0.5
Arenaria sp.	14	0.5
Astragalus cibarius	7	0.5
Astragalus miser	35	0.5
Astragalus sp.	42	0.5
Balsamorhiza sagittata	14	0.5
Besseya wyomingensis	50	0.7
Bupleurum americanum	14	0.5
unknown Caryophyllaceae	14	0.5
Castilleja angustifolia	14	0.5
Castilleja sp.	50	0.5
Comandra umbellata	64	0.4
unknown Compositae	28	0.5
Crepis sp.	57	0.5
Cryptantha stricta	7	0.5
unknown Cruciferae	21	0.5
Cymopteris bipinnatus (nivalis)	14	0.5
Delphinium sp.	7	0.5
Dodecatheon pulchellum	42	0.5
Draba oligosperma	7	0.5
Draba sp.	14	0.5
Erigeron compositus	14	0.7
Erigeron sp.	14	0.5
Eriogonum ochrocephalum	7	0.5
Eriogonum sp	7	0.5
Eriogonum umbellatum	28	0.5
Frasera speciosa	21	0.5
Fritillaria atropurpurea	7	0.5
Geum triflorum	21	0.3
Haplopappus sp.	7	0.5
Haplopappus (Stenotus) stenophyllus	28	0.5
Helianthella uniflora	14	1.0
Heuchera sp.	21	0.5
Iris missouriensis	7	0.5
Linum perenne (lewisii)	14	0.5
Lithospermum ruderale	7	0.5
Lomatium triternatum	14	0.5
Lupinus lepidus	35	0.8
Lupinus sp.	7	0.1
Mertensia viridis (lanceolata var. nivalis)	78	0.5
Oxytropis lagopus	7	0.5
Oxytropis sp.	14	0.5
Oxytropis viscida	7	0.5
Penstemon aridus	7	0.5
Pedicularis contorta var. ctenophora	14	0.7
Pedicularis sp.	21	0.5
Penstemon gracilis	14	0.5
Phlox caespitosa	7	0.5
Phlox hoodii	42	0.7
Phlox longifolia	28	0.5
Phlox sp.	21	0.5
Potentilla ovina	7	0.5
Saxifraga rhomboidea	7	0.5
Sedum lanceolatum	42	0.5
Senecio canus	14	0.5
Senecio integerrimus	14	0.5
Senecio sp.	21	0.5
Taraxacum officinale	78	0.4
Townsendia florifer	7	0.5
Townsendia parryi	14	0.7
unknown Umbelliferae	7	0.5
Viola nuttallii	21	0.5
Viola sp.	7	0.5
Zigadenus venenosus	7	0.5

Soils

The soils of this ecological type are represented by the Zeale series.

Taxonomic class: Loamy-skeletal, carbonatic Calcic Cryoborolls

Typical pedon description

Zeale gravelly silt loam; supporting a mountain big sagebrush/Idaho fescue h.t.; on a 15 percent slope with a north aspect at 7640 feet elevation. (Colors are for dry soil unless otherwise noted.)

A1--0 to 4 inches; very dark grayish brown (10YR 3/2) gravelly silt loam, black (10YR 2/1) moist; weak very fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine, common fine and few medium roots; many

very fine irregular pores; 15 percent pebbles; slightly alkaline (pH 7.6); abrupt smooth boundary.

A2--4 to 15 inches; dark grayish brown (10YR 4/2) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and slightly plastic; common very fine, fine, and few medium roots; many very fine irregular pores; slightly effervescent; 30 percent pebbles; slightly alkaline (pH 7.6); clear smooth boundary.

Bk1--15 to 22 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure parting to moderate fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; many hard pendants of carbonates on underside of rock fragments; strongly effervescent; 35 percent pebbles; moderately alkaline (ph 8.0); clear smooth boundary.

Bk2--22 to 31 inches; very pale brown (10YR 7/3) very gravelly loam, light yellowish brown (10YR 6/4) moist; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; continuous coats of soft powdery lime on rock fragments and common fine (less than 5 mm) masses of soft powdery lime in matrix; violently effervescent; 45 percent pebbles, trace cobbles; moderately alkaline (pH 8.0); gradual smooth boundary.

Bk3--31 to 48 inches; light gray (10YR 7/2) very gravelly loam, pale brown (10YR 6/3) moist; moderate very fine angular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; many very fine tubular pores; continuous coats of soft powdery lime on rock fragments and common fine (less than 5 mm) masses of soft powdery lime in matrix; violently effervescent; 45 percent pebbles, 10 percent cobbles; moderately alkaline (pH 8.0); diffuse smooth boundary.

Bk4--48 to 60 inches; light gray (10YR 7/2) extremely cobbly loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine tubular pores; continuous coats of soft powdery lime on rock fragments and many fine (less than 5 mm) masses of soft powdery lime in matrix; violently effervescent; 30 percent pebbles, 35 percent cobbles, trace stones; moderately alkaline (ph 8.0).

Typical pedon location
Legal description: about 1900 feet east and 800 feet north of the southwest corner section 35, T. 11 N., R. 12 E., ID.
Latitude: 44 degrees, 13 minutes, 58 seconds north.
Longitude: 112 degrees, 47 minutes, 30 seconds west.
Map Unit in which located: 1128

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 8 to 15 inches
Depth to calcic horizon - 8 to 18 inches
Clay in particle-size control section, weighted average - 15 to 25 percent
Rock fragments in particle-size control section, weighted average - 40 to 70 percent
Calcium carbonate equivalent in the mineralogy control section, weighted average - 40 to 80 percent

A horizons
Value - 3 through 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry, 1 to 3 moist
Effervescence - noneffervescent through strongly effervescent

Bk or Bkq horizons
Hue - 7.5YR or 10YR
Value - 5 through 8 dry, 4 through 6 moist
Chroma - 2 through 6 dry or moist
Texture, less than 2 mm fraction - loam or sandy loam
Rock fragments - 35 to 70 percent
Reaction - moderately alkaline or strongly alkaline

ARTRV/FEID Zeebar Ecological Type

This ecological type is named for the occurrence of mountain big sagebrush/Idaho fescue habitat type on Zeebar soils.

Environmental Setting
Landforms: fan remnants and foothills
Parent Material: local alluvium or colluvium derived from quartzite conglomerate and loess
Slope range: 4 to 50 percent
Elevation: 6000 to 9000 feet
Average annual precipitation: 16 to 20 inches
Average annual temperature: 35 to 38 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation
The potential natural vegetation of this ecological type is *Artemisia tridentata* ssp. *vaseyana/Festuca idahoensis* habitat type.

Present communities: The mountain big sagebrush/Idaho fescue h.t. and communities dominated by mountain big sagebrush and bluebunch wheatgrass are commonly supported.

Vegetation Composition (N=12)

Scientific name	Constancy %	Mean %Cover
Shrubs		
Artemisia frigida	16	0.5
Artemisia rigida	8	0.5
Artemisia tridentata ssp. vaseyana	100	19.4
Chrysothamnus nauseosus	8	2.0
Chrysothamnus viscidiflorus	50	1.2
Purshia tridentata	16	3.0
Rosa sp.	8	0.5
Selaginella densa var. densa	8	0.5
Symphoricarpos oreophilus	8	0.5
Tetradymia canescens	25	0.6
Graminoids		
Agropyron dasystachyum	8	0.5
Agropyron intermedium	16	0.5
Agropyron repens	8	0.5
Agropyron (Pascopyrum) smithii	16	0.5
Agropyron (Pseudoroegneria) spicatum	41	8.1
Agrostis stolonifera	8	0.5
Agropyron trachycaulum	16	0.7
Bromus carinatus	16	1.5
Bromus inermis	16	0.5
Bromus sp.	8	0.5
Bromus tectorum	8	0.5
Carex douglasii	8	0.5
Carex filifolia	25	0.6
Carex sp.	8	0.5
Danthonia intermedia	16	0.7
Danthonia sp.	16	0.5
Festuca idahoensis	100	12.2
Hesperochloa kingii	8	2.0
Koeleria nitida (cristata) (macrantha)	41	2.4
Melica bulbosa	8	0.5
Melica spectabilis	16	0.5
Phleum pratense	25	0.5
Poa cusickii	8	0.5
Poa nevadensis	16	0.7
Poa pratensis	41	2.8
Poa sandbergii	8	0.5
Poa scabrella	8	0.5
Poa secunda	8	0.5
Poa sp.	16	1.2
Sitanion hystrix	8	0.5
Stipa columbiana	50	1.0
Stipa comata	16	3.0
Stipa occidentalis	8	0.1
Stipa sp.	8	0.5
Trisetum spicatum	8	0.5
Forbs		
Achillea millefolium	83	0.6
Agoseris glauca	41	0.8
Allium sp.	8	0.5
Antennaria microphylla	83	0.8
Arabis drummondii	16	0.5
Arabis holboellii	41	0.5
Arabis sp.	8	0.5
Arenaria congesta	41	1.1
Arenaria kingii	8	0.5
Arenaria sp.	8	0.5
Aster integrifolius	8	0.5
Astragalus miser	8	0.5
Astragalus sp.	33	0.5
Balsamorhiza sagittata	16	0.5
unknown Boraginaceae	16	0.5
Campanula rotundifolia	8	0.5
Castilleja cusickii	16	0.5
Castilleja rustica	8	0.5
Castilleja sp.	8	0.1
unknown Chenopodiaceae	8	0.5
Cirsium arvense	8	0.5
Clematis hirsutissima	8	0.5
Collomia grandiflora	8	0.5
Collinsia parviflora	16	0.5

Comandra umbellata	8	0.5
unknown Compositae	25	0.3
Crepis acuminata	8	0.5
Crepis sp.	8	0.1
Delphinium bicolor	16	0.5
Descurainia sp.	8	0.5
Epilobium minutum	25	0.5
Erigeron caespitosus	8	0.5
Erigeron compositus	8	0.5
Erigeron peregrinus	25	0.6
Eriogonum heracleoides	33	0.6
Eriogonum sp.	8	0.5
Eriogonum umbellatum	66	1.1
Eriophyllum lanatum	8	0.5
Erysimum inconspicuum	8	0.5
Fritillaria atropurpurea	8	0.5
Geranium viscosissimum	33	0.6
Geum triflorum	33	0.7
Helianthella uniflora	16	0.5
Hieracium sp.	8	0.5
Lithospermum ruderale	8	1.0
Lupinus argenteus	8	1.0
Lupinus caudatus	16	0.5
Lupinus lepidus	8	0.5
Lupinus leucophyllus	16	2.2
Lupinus sp.	25	0.5
Mertensia viridis (lanceolata var. nivalis)	8	0.5
Microsteris gracilis	33	0.5
Microseris troximoides	8	0.5
Oenothera caespitosa (cespitosa)	8	0.5
Perideridia gairdneri	41	0.6
Phacelia heterophylla	25	0.5
Phacelia sericiea	8	0.5
Phlox hoodii	8	0.5
Phlox longifolia	25	0.6
Phlox sp.	8	0.5
Polygonum douglasii	50	0.9
Potentilla glandulosa	33	0.7
Potentilla gracilis	25	2.6
Rumex paucifolius	25	0.5
Senecio sp.	8	0.5
Taraxacum officinale	83	0.5
Tragopogon dubius	41	0.6
Trifolium arvense	16	0.5
Viola nuttallii	8	0.5
Wyethia helianthoides	25	2.1
Zigadenus venenosus	8	0.5

Soils
The soils of this ecological type are represented by the Zeebar series.

Taxonomic class: Loamy-skeletal, mixed Argic Cryoborolls

Typical pedon description
Zeebar gravelly loam supporting a mountain big sagebrush/Idaho fescue habitat type; on a 10 percent slope; about 6150 feet elevation. (Colors are for dry soil unless otherwise stated.)

A1–0 to 3 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine irregular pores; 30 percent pebbles; neutral (pH 7.2); abrupt smooth boundary.

A2–3 to 13 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure parting to strong fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine irregular pores; 20 percent pebbles and 5 percent cobbles; neutral (pH 7.2); gradual smooth boundary.

Bt1–13 to 27 inches; yellowish brown (10YR 5/4) very gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure parting to strong medium subangular blocky; hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; few faint clay films lining pores and on rock fragments; 25 percent pebbles, 10 percent cobbles and trace stones; slightly acid (pH 6.4); gradual smooth boundary.

Bt2–27 to 49 inches; yellowish brown (10YR 5/4) extremely gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure parting to moderate fine subangular blocky; hard, very friable, slightly sticky and slightly plastic; few fine roots; many very fine tubular pores; few faint clay films lining pores and on rock fragments; 60 percent pebbles, 10 percent cobbles and trace stones; neutral (pH 7.0); gradual smooth boundary.

C–49 to 60 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very firm, nonsticky and nonplastic; few very fine roots; few very fine

tubular pores; 65 percent pebbles and 5 percent cobbles; neutral (pH 7.0).

Typical pedon location
Legal description: about 3 miles northeast of Spencer; about 1600 feet west and 900 south of the northeast corner of section 8, T. 12 N., R 37 E., ID.
Latitude: 44 degrees, 23 minutes, 13 seconds north.
Longitude: 112 degrees, 07 minutes, 03 seconds west.
Map unit in which located: 1146

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 16 inches
Solum thickness - 35 to 50 inches
Reaction - slightly acid or neutral
Clay in particle-size control section, weighted average - 20 to 30 percent

A horizons:
Hue - 10YR or 7.5YR
Value - 3 to 5 dry, 2 or 3 moist
Chroma - 1 to 3 dry or moist

Bt horizons:
Value - 4 to 6 dry, 3 to 5 moist
Chroma - 2 to 4 dry or moist
Texture, less than 2 mm fraction - sandy clay loam or clay loam
Pebbles - 35 to 65 percent
Cobbles - 5 to 35 percent

C horizons:
Hue - 10YR or 2.5Y
Value - 6 or 7 dry
Chroma - 2 to 4 dry or moist
Texture, less than 2 mm fraction - loam or sandy loam
Pebbles - 40 to 75 percent
Cobbles - 5 to 35 percent

ARTRV/SYOR2/FEID Zeebar, cool Ecological Type

This ecological type is named for the occurrence of mountain big sagebrush/whortleleaf snowberry/Idaho fescue habitat type on Zeebar, cool soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: foothills
Parent Material: local alluvium or colluvium derived from quartzite conglomerate and loess
Slope range: 30 to 50 percent
Elevation: 6500 to 9000 feet
Average annual precipitation: 16 to 20 inches
Average annual temperature: 34 to 37 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation
The potential natural vegetation of this ecological type is *Artemisia tridentata* ssp. *vaseyana/Symphoricarpos oreophilus/Festuca idahoensis* habitat type.

Present communities: The mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. is commonly supported.

Vegetation Composition (N=2)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pseudotsuga menziesii	50	3.0
Shrubs		
Artemisia tridentata ssp. vaseyana	100	21.0
Prunus virginiana ssp. melanocarpa	50	10.0
Symphoricarpos oreophilus	100	10.0
Graminoids		
Agropyron intermedium	50	0.5
Agropyron (Pseudoroegneria) spicatum	50	12.0
Agropyron trachycaulum	50	0.5
Bromus carinatus	100	2.5
Bromus tectorum	50	2.0
Elymus glaucus	50	0.5
Koeleria nitida (cristata) (macrantha)	50	0.5
Melica bulbosa	50	0.5
Poa pratensis	50	1.0

Stipa columbiana	50	0.5
Forbs		
Agastache urticifolia	50	8.0
Aster integrifolius	50	10.0
Aster sp.	100	0.5
Astragalus miser	50	0.5
Balsamorhiza macrophylla	50	1.0
Balsamorhiza sagittata	50	0.5
unknown Boraginaceae	50	0.5
Crepis acuminata	50	1.0
Epilobium minutum	50	0.5
Erigeron peregrinus	50	0.5
Eriogonum umbellatum	50	1.0
Geranium viscosissimum	50	0.5
Hackelia micrantha (jessicae)	50	1.0
Helianthella uniflora	50	0.5
Ligusticum filicinum	50	0.5
Lomatium triternatum	50	0.5
Lupinus caudatus	50	0.5
Microsteris gracilis	100	0.5
Osmorhiza occidentalis	50	0.5
Phacelia sericiea	50	1.0
Polygonum douglasii	100	1.0
Potentilla glandulosa	50	0.5
Rumex paucifolius	50	0.5
Senecio serra	50	0.5
Solidago missouriensis	50	0.5
Stellaria americana	50	0.5
Taraxacum officinale	50	2.0
Tragopogon dubius	100	0.7
Viola sp.	50	0.5

Soils
The soils of this ecological type are represented by the Zeebar series, cool phase.

Taxonomic class: Loamy-skeletal, mixed Argic Cryoborolls

Typical pedon description
Zeebar, cool, gravelly loam supporting an mountain big sagebrush/whortleleaf snowberry/Idaho fescue habitat type, on a 30 percent slope; about 7650 feet elevation. (Colors are for dry soil unless otherwise stated.)

A1--0 to 3 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine, common fine and few medium roots; many very fine irregular pores; 20 percent pebbles, trace cobbles; slightly acid (pH 6.2); clear smooth boundary.

A2--3 to 11 inches; brown (10YR 4/3) gravelly loam, dark brown (7.5YR 3/2) moist; weak medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; many fine, common very fine and few medium roots; common fine irregular and few fine tubular pores; 20 percent pebbles, 5 percent cobbles; slightly acid (pH 6.4); clear smooth boundary.

Bt1--11 to 22 inches; light olive brown (2.5Y 5/3) very cobbly loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; soft, friable, sticky and plastic; common very fine, few fine and medium roots; common fine irregular and few fine tubular pores; few faint clay films lining pores and on rock fragments; 20 percent pebbles, 30 percent cobbles, 5 percent stones; slightly acid (pH 6.2); clear smooth boundary.

Bt2--22 to 50 inches; light olive brown (2.5Y 5/3) extremely cobbly sandy clay loam, brown (10YR 5/3) moist; massive; slightly hard, friable, sticky and plastic; few fine roots; few fine irregular pores; few faint clay films lining pores and on rock fragments; 20 percent pebbles, 40 percent cobbles, 10 percent stones; slightly acid (pH 6.2).

Typical pedon location
Legal description: about 300 feet north and 1400 east of the southwest corner of section 20 T. 14 N., R 39 E., ID.
Latitude: 44 degrees, 31 minutes, 08 seconds north.
Longitude: 111 degrees, 53 minutes, 10 seconds west.
Map unit in which located: 1147

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 16 inches
Solum thickness - 35 to 50 inches
Reaction - slightly acid or neutral
Clay in particle-size control section, weighted average - 20 to 30 percent

A horizons:
Hue - 10YR or 7.5YR
Value - 3 to 5 dry, 2 or 3 moist
Chroma - 1 to 3 dry or moist

Bt horizons:
Value - 4 to 6 dry, 3 to 5 moist
Chroma - 2 to 4 dry or moist
Texture, less than 2 mm fraction - loam, sandy clay loam or clay loam
Pebbles - 35 to 65 percent
Cobbles - 5 to 40 percent
Stones - 0 to 10 percent

C horizons (when present):
Hue - 10YR or 2.5Y
Value - 6 or 7 dry
Chroma - 2 to 4 dry or moist
Texture, less than 2 mm fraction - loam or sandy loam
Pebbles - 40 to 75 percent
Cobbles - 5 to 35 percent

ARTRW8/ARARA Simeroi, cool Ecological Type

This ecological type is named for the occurrence of Wyoming big sagebrush/bluebunch wheatgrass habitat type and gray low sagebrush/bluebunch wheatgrass habitat type ecotone on Simeroi, cool soils.

Environmental Setting
Landforms: fan remnants
Parent Material: alluvium derived from limestone and loess
Slope range: 4 to 20 percent
Elevation: 5500 to 7400 feet
Aspect: 35 to 280 degrees
Average annual precipitation: 10 to 11 inches
Average annual temperature: 37 to 39 degrees F.
Temperature regime: frigid
Moisture regime: aridic bordering on xeric

Vegetation
The potential natural vegetation of this ecological type is *Artemisia tridentata* ssp. *wyomingensis/Agropyron spicatum* habitat type and *Artemisia arbuscula* ssp. *arbuscula/Agropyron spicatum* habitat type ecotone.

Present communities: An irregular mosaic of the Wyoming big sagebrush/bluebunch wheatgrass h.t. and the gray low sagebrush/bluebunch wheatgrass h.t. are present. Communities dominated by spineless horsebrush or threetip sagebrush and bluebunch wheatgrass are also supported.

Vegetation Composition (N=8)

Scientific name	Constancy %	Mean %Cover
Shrubs		
Artemisia arbuscula ssp. arbuscula	75	14.7
Artemisia frigida	37	0.3
Artemisia nova	37	1.0
Artemisia tridentata ssp. tridentata	12	0.5
Artemisia tridentata ssp. vaseyana	12	1.0
Artemisia tridentata ssp. wyomingensis	12	20.0
Artemisia tripartita	12	15.0
Chrysothamnus viscidiflorus	75	0.7
Tetradymia canescens	62	0.4
Graminoids		
Agropyron sp.	12	0.5
Agropyron (Pseudoroegneria) spicatum	100	6.5
Festuca idahoensis	50	0.8
Hesperochloa kingii	25	0.5
Koeleria nitida (cristata) (macrantha)	50	0.6
Oryzopsis hymenoides	12	0.5
Poa cusickii	12	0.5
Poa sandbergii	62	0.9
Poa sp.	37	2.0
Stipa comata	25	0.5
Forbs		
Allium sp.	12	0.5
Antennaria dimorpha	12	0.5
Antennaria microphylla	50	0.8
Arabis holboellii	25	0.5
Arabis sp.	12	0.5
Arenaria sp.	37	0.3
Astragalus cibarius	12	0.5
Astragalus miser	50	0.5
Astragalus purshii	50	0.6
Astragalus sp.	25	0.5
Aster sp.	12	0.5
Balsamorhiza sagittata	25	0.5
Besseya wyomingensis	25	0.5
Castilleja angustifolia	37	0.5
Castilleja flava	12	0.5
Castilleja sp.	50	0.4

Coryphantha missouriensis	12	0.5
unknown Compositae	25	0.5
Comandra umbellata	12	0.5
Crepis sp.	100	0.5
Cryptantha stricta	12	0.5
unknown Cruciferae	12	0.5
Cymopteris bipinnatus (nivalis)	37	0.5
Erigeron compositus	12	0.5
Erigeron sp.	25	0.7
Eriogonum ovalifolium	12	0.5
Erysimum sp.	12	0.5
Fritillaria atropurpurea	25	0.5
Geum triflorum	12	0.5
Haplopappus (Stenotus) stenophyllus	50	0.4
Lesquerella carinata	12	0.5
Linum perenne (lewisii)	37	0.5
Lithospermum ruderale	25	0.5
Lomatium triternatum	12	0.5
Mertensia viridis (lanceolata var. nivalis)	12	0.5
Microseris troximoides	37	0.5
Opuntia polyacantha	12	0.5
Orobanche sp.	25	0.5
Penstemon aridus	12	0.5
Phlox caespitosa	12	0.5
Phlox hoodii	87	0.8
Polygonum sp.	25	0.3
Potentilla ovina	12	0.5
Sedum lanceolatum	12	0.5
Senecio integerrimus	12	0.5
Senecio sp.	12	0.5
Townsendia montana (alpigena)	12	0.5
Tragopogon dubius	37	0.5
Zigadenus venenosus	25	0.5

Soil
The soils of this ecological type are represented by the Simeroi series, cool phase.

Taxonomic class: Loamy-skeletal, carbonatic, frigid Xeric Haplocalcids

Typical pedon description
Simeroi gravelly silt loam; supporting a gray low sagebrush/bluebunch wheatgrass habitat type, on an 8 percent slope with a south aspect at 6650 feet elevation. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches; grayish brown (10YR 5/2) gravelly silt loam, dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and common fine roots; many very fine irregular pores; strongly effervescent; 20 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2--2 to 8 inches; brown (10YR 5/3) very gravelly loam, dark grayish brown (10YR 4/2) moist; moderate coarse subangular blocky structure parting to weak fine granular; slightly hard, very friable, nonsticky and slightly plastic; many very fine, common fine and few medium roots; many very fine irregular pores; continuous thick lime coats on underside of rock fragments; strongly effervescent; 40 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bk1--8 to 14 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine tubular pores; 40 percent weak discontinuous lime cementation, hard and firm; violently effervescent; 40 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary.

2Bk2--14 to 34 inches; light gray (10YR 7/2) extremely gravelly sandy loam, pale brown (10YR 6/3) moist; massive; very hard, very firm, nonsticky and nonplastic; few very fine tubular pores; continuous thick lime and silica pendants on underside of rock fragments; violently effervescent; 70 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.4); gradual wavy boundary.

2Bqk3--34 to 60 inches; varigated extremely gravelly sandy loam; massive; very hard, very firm, nonsticky and nonplastic; common fine irregular pores; continuous lime and silica pendants on underside of rock fragments; violently effervescent; 70 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.4).

Typical pedon location
Legal description: about 500 feet north and 2300 feet west of the southeast corner of sec. 22, T. 11 N., R. 32 E., ID.
Latitude: 44 degrees, 15 minutes, 38 seconds

north.
Longitude: 112 degrees, 42minutes, 0 seconds west.
Map unit in which located: 1127

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Clay in particle-size control section, weighted average - 4 to 12 percent
Calcium carbonate equivalent in the particle-size control section - 40 to 70 percent

A horizon:
Hue - 2.5Y or 10YR
Value - 5 through 7 dry, 3 through 5 moist
Chroma - 2 or 3 dry or moist
Reaction - slightly alkaline or moderately alkaline
Effervescence - slightly effervescent through violently effervescent
Rock fragments - 15 to 50 percent

Bk or Bkq horizons:
Hue - 2.5Y or 10YR
Value - 6 through 8 dry, 4 through 6 moist
Chroma - 2 or 3 dry, 3 or 4 moist
Rock fragments - 40 to 85 percent
Reaction - moderately alkaline or strongly alkaline

DECE Paleboralfs, wet Ecological Type

This ecological type is named for the occurrence of tufted hairgrass community type on Paleboralfs, wet soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: caldera floor
Parent Material: loess over residuum from basalt
Slope range: 0 to 2 percent
Elevation: 5900 to 6800 feet
Average annual precipitation: 20 to 28 inches
Average annual temperature: 37 to 40 degrees F.
Temperature regime: cryic
Moisture regime: oxiaquic

Vegetation
The potential natural vegetation of this ecological type is *Deschampsia cespitosa* community type.

Present communities: Communities dominated by riparian sedges and native grasses are commonly supported.

Vegetation Composition (N=2)

Scientific name	Constancy %	Mean %Cover
Graminoids		
Carex leporinella	50	5.0
Carex microptera	50	3.0
Carex sp.	50	5.0
Danthonia intermedia	50	1.0
Deschampsia cespitosa	50	15.0
Juncus confusus	50	1.0
Koeleria nitida (cristata) (macrantha)	100	0.5
Melica subulata	50	2.0
Phleum pratense	50	1.0
Poa nevadensis	50	1.0
Poa palustris	100	4.0
Poa pratensis	100	5.0
Stipa columbiana	50	2.0
Stipa sp.	50	0.5
Forbs		
Achillea millefolium	100	2.5
Camassia quamash	50	1.0
Epilobium minutum	50	0.5
Potentilla gracilis	50	1.0
Rumex crispus	50	3.0
Rumex sp.	50	0.5
Senecio integerrimus	50	15.0
Senecio vulgaris	50	1.0
Triteleia grandiflora	50	1.0
Wyethia helianthoides	50	8.0
Wyethia sp.	50	0.5
Zigadenus sp.	50	2.0

Soil
The soils of this ecological type are represented by the Paleboralfs great group, wet phase.

Taxonomic class: Coarse-silty, mixed Oxyaquic Paleboralfs

Typical pedon description
Coarse-silty Paleboralfs supporting graminoid-dominated community type semi-wet meadow; on a 1 percent slope; about 5980 feet elevation.

(Colors are for dry soil unless otherwise noted.)

A1--0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine platy structure parting to moderate fine granular; soft, very friable, nonsticky and slightly plastic; common very fine and fine roots; few very fine irregular and tubular pores; moderately acid (pH 6.0); abrupt smooth boundary.

A2--4 to 16 inches; brown (10YR 5/3) silt loam, dark grayish brown (10YR 3/3) moist; many fine and medium dark reddish brown (5YR 3/4) redox concentrations; strong medium and coarse prismatic structure parting to strong coarse subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine through coarse tubular pores; common 1.5 to 3 inch krotovinas; common pockets of worm casts; moderately acid (pH 6.0); clear smooth boundary.

E/B--16 to 29 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist (60 percent of horizon E material) and yellowish brown (10YR 5/4), dark yellowish brown (10YR 3/4) moist (40 percent of horizon B material); many medium and large dark brown (7.5YR 4/3) redox concentrations, common fine yellowish red (5YR 4/6) redox concentrations; weak coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots, many very fine and fine, few medium and coarse tubular pores; common fine black (10YR 2/1) manganese nodules; common 1.5 to 3 inch krotovinas; common pockets of worm casts; slightly acid (ph 6.1); clear wavy boundary.

B/E--29 to 44 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist (70 percent of horizon B material) and pale brown (10YR 6/3), brown (10YR 4/3) moist (30 percent of horizon E material); many medium and large dark brown (7.5YR 4/3) redox concentrations, common fine yellowish red (5YR 4/6) redox concentrations; strong coarse subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine, few medium and coarse tubular pores; slightly acid (pH 6.4); clear wavy boundary.

2Bt--44 to 62 inches; brown (7.5YR 5/4) cobbly silty clay, dark brown (7.5YR 4/3) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; very hard, firm, very sticky and very plastic; few very fine roots; common very fine and fine tubular pores; many pressure faces on ped faces; 10 percent pebbles, 10 percent cobbles and 5 percent stones; slightly acid (pH 6.4).

Typical pedon location
Legal description: about 2000 feet south and 2200 feet west of the northeast corner of sec. 8, T.10N., R.44E., ID.
Latitude: 44 degrees, 12 minutes, 32 seconds north.
Longitude: 111 degrees, 16 minutes, 50 seconds west.
Map unit in which located: 2000

Range in characteristics
Profile:
Depth class - very deep
Drainage class - somewhat poorly drained
Umbric epipedon thickness - 10 to 20 inches
Depth to bedrock - 60 to 100 inches
Depth to argillic horizon - 40 to greater than 60 inches
Depth to redox concentrations - 0 to 12 inches
Control section clay content - 10 to 18 percent
Rock fragments in the particle size control section averages - 0 to 15 percent
Water table, depth - 0 to 18 inches
Water table, kind - apparent
Water table, duration - May to July
Reaction - moderately acid or slightly acid
Base saturation in some subhorizon is less than 50 percent

A horizons:
Hue - 7.5YR or 10YR
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 1 to 3 dry and moist

E/B and B/E horizons:
Hue - 2.5Y to 7.5YR
Value -
E material - 5 or 6 dry, 4 or 5 moist
B material - 5 or 6 dry, 3 or 4 moist
Chroma -
E material - 1 to 3 dry and moist
B material - 3 or 4 dry and moist
Rock fragments - 0 to 20 percent
E material ranges from 15 to 70 percent
B material ranges from 30 to 90 percent

Some pedons have E horizons above the E/B and B/E horizons

Bt horizons:
Hue - 5Y to 7.5YR
Value - 5 to 7 dry and 4 to 6 moist
Chroma - 1 to 4 dry and moist
Texture, less than 2 mm fraction - silty clay, silty clay loam or clay loam or clay
Rock fragments - 0 to 35 percent

DECE Stamp Ecological Type

Incompletely defined at time of this printing.

Depauperate Alpine Forb Meadow Typic Cryochrepts Ecological Type

This ecological type is named for the occurrence of depauperate alpine forb meadow communities on Typic Cryochrepts soils.

Environmental Setting
Landforms: mountains
Parent Material: colluvium derived from limestone
Slope range: 40 to 70 percent
Elevation: 8800 to 12200 feet
Average annual precipitation: 25 to 35 inches
Average annual temperature: 33 to 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type are depauperate alpine forb meadow communities.

Present communities: Depauperate alpine forb meadow communities are commonly supported. Species dominance varies with geographic areas and aspect. South facing slopes support species with more drought tolerance and communities with less total cover than north facing slopes. Communities dominated by the following species were observed: Hayden's clover, smooth larkspur, Nuttall's sandwort, Tweedy's ivesia, rock sedge, Sandburg bluegrass, Michaux's sagewort, common twinpod, Cusick's giant hyssop, gooseberry currant and green rabbitbrush.

Vegetation Composition (N=7)

Scientific name	Constancy %	Mean %Cover
Shrubs		
Chrysothamnus viscidiflorus	14	10.0
Dryas octopetala ssp. hookeriana	14	20.0
Ribes cereum	14	0.5
Ribes montigenum	42	0.3
Ribes sp.	14	0.5
Salix nivalis (reticulata ssp. nivalis)	14	0.5
Graminoids		
Agropyron sp.	14	0.5
Agropyron trachycaulum	14	0.1
Carex elynoides	14	2.0
Carex rupestris	28	6.0
Festuca ovina	28	0.3
Hordeum jubatum	57	0.5
Poa alpina	14	0.5
Poa interior	57	0.6
Poa rupicola	14	0.5
Poa sandbergii	14	0.5
Poa scabrella	14	0.5
Poa secunda	28	1.7
Poa sp.	14	0.5
Trisetum spicatum	14	0.5
Forbs		
Achillea millefolium	42	3.6
Agastache cusickii	14	1.0
Agoseris glauca	14	1.0
Androsace septentrionalis	14	0.5
Anelsonia eurycarpa	14	0.5
Anemone multifida	14	0.1
Anemone parviflora	14	0.5
Angelica roseanna	14	0.5
Antennaria microphylla	42	0.5
Antennaria sp.	14	0.5
Antennaria umbrinella	14	0.1
Arabis nuttallii	14	0.1
Arabis sp.	14	0.5
Arenaria (Minuartia) nuttallii	85	1.2
Arenaria sp.	14	0.5
Artemisia michauxiana	28	1.0
Astragalus kentrophyta	28	0.5
Castilleja miniata	14	0.5
Collomia debilis var. debilis	14	0.1

unknown Compositae	42	0.5
Cymopteris bipinnatus (nivalis)	42	0.5
Delphinium glaucescens	28	12.7
Delphinium sp.	28	0.5
Draba sp.	28	0.5
Draba oligosperma	28	0.5
Erigeron compositus	57	0.6
Erigeron leiomerus	14	0.5
Erigeron tweedyi	14	0.1
Heuchera sp.	14	0.1
Ivesia tweedyii	14	0.5
Lesquerella carinata	14	0.5
Linum perenne (lewisii)	28	0.5
Lloydia serotina	42	0.5
Lupinus leucophyllus	28	0.3
Oxyria digyna	14	0.1
Oxytropis lagopus	14	0.1
Oxytropis sericea	28	0.7
Pedicularis sp.	14	0.5
Penstemon montanus	28	0.3
Penstemon sp.	14	0.1
Phacelia hastata	14	0.1
Phlox pulvinata	14	0.5
Potentilla ovina	42	0.3
Saxifraga oppositifolia	14	2.0
Senecio canus	42	0.3
Senecio dimorphophyllus	14	0.5
Senecio fremontii	14	0.5
Sedum lanceolatum	28	0.5
Senecio sp.	28	0.3
Senecio streptanthifolius var. brevifolius	14	0.1
Stellaria longipes var. altocaulis	14	0.5
Townsendia montana (alpigena)	14	0.5
Trifolium haydenii	42	3.1

Soils
The soils of this ecological type are represented by the Typic Cryochrepts subgroup.

Taxonomic class: Typic Cryochrepts

Typical pedon description
Typic Cryochrepts, extremely gravelly sandy loam; supporting a depauperate alpine forb meadow community; on a 62 percent slope with a south aspect at 9600 feet elevation. (Colors are for dry soil unless otherwise noted.)

A1--0 to 2 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure parting to weak medium granular; soft, very friable, nonsticky and nonplastic; few very fine roots; many fine vesicular pores; common hard pendants of carbonates and few pendants of silica on one side of rock fragments (no orientation); violently effervescent; 50 percent pebbles, 25 percent cobbles, trace stones; moderately alkaline (pH 8.0); abrupt wavy boundary.

A2--2 to 8 inches; brown (10YR 5/3) very gravelly sandy loam, brown (10YR 4/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; many very fine irregular pores; few hard pendants of carbonates and silica on underside of rock fragments; violently effervescent; 40 percent pebbles, 15 percent cobbles, trace stones; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bkq--8 to 19 inches; pale brown (10YR 6/3) extremely cobbly sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; common hard pendants of carbonates and few pendants of silica on underside of rock fragments; violently effervescent; 30 percent pebbles, 40 percent cobbles, trace stones; slightly alkaline (pH 7.8); gradual smooth boundary.

BC--19 to 36 inches; pale brown (10YR 6/3) extremely cobbly fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; few pendants of carbonates and silica on underside of rock fragments; violently effervescent; 10 percent pebbles, 70 percent cobbles, 5 percent stones; slightly alkaline (pH 7.8); abrupt irregular boundary.

R--36; fractured limestone bedrock.

Typical pedon location
Legal description: about 2600 feet west and 2850 feet of the southeast corner of section 6, T. 12 N., R. 32 E., ID.
Latitude: 44 degrees, 18 minutes, 37 seconds

north.
Longitude: 112 degrees, 44 minutes, 47 seconds west.
Map Unit in which located: 1280

Range in characteristics
Profile:
Depth class - moderately deep through very deep
Drainage class - somewhat excessively drained
Depth to hard bedrock - 20 to greater than 60 inches
Ochric epipedon thickness - 2 to 9 inches
Depth to base of calcic or cambic horizons - 10 to 20 inches
Rock fragments in particle-size control section, weighted average - 50 to 90 percent
Reaction - neutral through moderately alkaline
Effervescence - noneffervescent through violently effervescent
Calcium carbonate equivalent in mineralogy control section, weighted average - 0 to 70 percent

A horizon
Hue - 10YR or 2.5Y
Value - 4 through 6 dry, 3 through 5 moist
Chroma - 2 or 3 dry or moist

Bw, Bk or Bkq horizons
Hue - 10YR or 2.5Y
Value - 5 or 6 dry, 4 or 5 moist
Chroma - 3 or 4 dry or moist
Texture, less than 2 mm fraction - loam, sandy loam, or fine sandy loam
Pebbles - 35 to 55 percent
Cobbles - 5 to 20 percent
Stones - 0 to 5 percent

BC or C horizons
Hue - 10YR through 5Y
Value - 5 through 7 dry, 4 or 5 moist
Chroma - 1 through 4 dry or moist
Texture, less than 2 mm fraction- sandy loam or fine sandy loam
Pebbles - 5 to 50 percent
Cobbles - 10 to 80 percent
Stones - 0 to 5 percent

PIAL Lasac Ecological Type

This ecological type is named for the occurrence of whitebark pine/elk sedge habitat type or whitebark pine/grouse whortleberry habitat type on Lasac soils.

Environmental Setting
Landforms: escarpments of plateaus
Parent Material: local alluvium, colluvium or residuum derived from mixed volcanic ejecta and loess
Slope range: 35 to 60 percent
Elevation: 6500 to 8000 feet
Average annual precipitation: 30 to 60 inches
Average annual temperature: 30 to 37 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pinus albicaulis/Carex geyeri* habitat type or *Pinus albicaulis/Vaccinium scoparium* habitat type.

Present communities: The lodgepole pine/elk sedge c.t. and lodgepole pine/grouse whortleberry c.t. are commonly supported.

Vegetation Composition (N=6)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	16	4.0
Pinus contorta	100	9.0
Tree d.b.h. < 5 inches		
Abies lasiocarpa	50	1.5
Pinus albicaulis	83	1.7
Pinus contorta	100	5.5
Pseudotsuga menziesii	50	1.1
Shrubs		
Amelanchier alnifolia	50	0.6
Berberis repens	16	1.0
Ceanothus velutinus	16	1.0
Lonicera utahensis	83	1.4
Ribes sp.	33	0.7
Ribes viscosissimum	50	0.5
Salix scouleriana	16	1.0
Sorbus scopulina	33	1.2
Spiraea betulifolia	100	5.1
Vaccinium globulare	16	1.0
Vaccinium scoparium	66	12.1
Graminoids		
Calamagrostis rubescens	100	8.5
Carex geyeri	83	11.0
Carex rossii	66	4.5

Elymus glaucus	16	0.5
Unknown grasses w/ >trace cover	16	1.0
Forbs		
Apocynum androsaemifolium	66	1.1
Arnica cordifolia	33	0.7
Aster engelmannii	16	0.5
Corallorhiza sp.	16	0.5
Epilobium angustifolium	33	0.7
Hieracium albiflorum	66	0.8
Hieracium cynoglossoides	33	0.7
Hieracium sp.	16	0.5
Lupinus argenteus	16	0.5
Pterospora andromedea	50	0.5
unknown forbs w/ > trace cover	16	0.5

Soil
The soils of this ecological type are represented by the Lasac series.

Taxonomic class: Ashy-skeletal Vitrandic Cryochrepts

Typical pedon description
Lasac gravelly silt loam, supporting a lodgepole pine/grouse whortleberry community type; on a convex slope of 40 percent with a north aspect: about 7160 feet elevation. (Colors are for air dry soil unless otherwise noted.)

O--1 to 0 inches; forest litter of needles, twigs and leaves; abrupt smooth boundary.

A1--0 to 6 inches; brown (10YR 5/3) gravely silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to weak very fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine roots, few medium and coarse roots; many very fine irregular pores; 10 percent pebbles, 5 percent cobbles, 5 percent stones and trace boulders; moderately acid (pH 5.6); abrupt smooth boundary.

Bw--6 to 10 inches; pale brown (10YR 6/3) gravelly silt loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and slightly plastic; common very fine roots, few fine, medium and coarse roots, many very fine irregular pores; 10 percent pebbles, 5 percent cobbles, 5 percent stones and trace boulders; moderately acid (pH 5.7); abrupt smooth boundary.

2BC--10 to 17 inches; light yellowish brown (10YR 6/4) extremely gravelly coarse sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots, few fine and medium roots; many fine irregular pores; 55 percent pebbles, 5 percent cobbles, 5 percent stones and trace boulders; slightly acid (pH 6.2); clear smooth boundary.

2C1--17 to 36 inches; light brownish gray (2.5 Y 6/2) very gravelly coarse sand, dark grayish brown (2.5Y 4/2) moist; single grain; loose, nonsticky and nonplastic; many very fine roots, few fine and medium roots; many fine irregular pores; 45 percent pebbles, 5 percent cobbles, 5 percent stones and trace boulders; neutral (pH 6.8); diffuse wavy boundary.

2C2--36 to 60 inches; light brownish gray (2.5 Y 6/2) very gravelly coarse sand, dark grayish brown (2.5Y 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many fine irregular pores; 45 percent pebbles, 5 percent cobbles, 5 percent stones and trace boulders; neutral (pH 7.0).

Typical pedon location
Legal description: about 300 feet south and 2500 feet west of the northeast corner of section 14, T. 14 N., R, 44 E., ID.
Latitude: 44 degrees, 32 minutes, 40 seconds north.
Longitude: 111 degrees, 13 minutes, 23 seconds west.
Map unit in which located: 1225

Range of characteristics
Profile:
Depth class - very deep
Drainage - somewhat excessively drained
Ochric epipedon thickness - 4 to 8 inches
Depth to lithologic discontinuity - 10 to 14 inches
Depth of andic soil properties - 10 to 14 inches
Solum thickness - 14 to 20 inches
Volcanic glass in the 0.02 to 2.0 mm fraction - greater than 30 percent

O horizon:
Thickness - 0 to 2 inches thick

Form - commonly forest litter of needles, twigs and leaves on lightly or undisturbed pedons and absent on pedons where recent, heavy mechanical disturbance has occurred.

A horizon:
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 to 4 dry or moist
Volcanic glass content in the 0.02 to 2.0 mm fraction - 50 to 90 percent
Ammonium oxalate extractable Al plus 1/2 Fe - 0.4 to 1.0 percent
15-bar water (air dried samples) - 7 to 11 percent
Phosphate retention - 35 to 60 percent
Bulk density - 0.65 to 1.00 grams per cubic centimeter
Reaction - strongly or moderately acid

Bw horizon:
Value - 3 or 4 moist, 5 or 6 dry
Chroma - 3 to 6 dry or moist
Texture, less than 2 mm fraction - silt loam, sandy loam, coarse sandy loam
Pebbles - 10 to 35 percent
Cobbles, stones or boulders - 0 to 10 percent
Volcanic glass content in the 0.02 to 2.0 mm fraction - 50 to 90 percent
Ammonium oxalate extractable Al plus 1/2 Fe - 0.4 to 1.0 percent
15-bat water (air dried samples) - 7 to 11 percent
Phosphate retention - 35 to 60 percent
Bulk density - 0.80 to 1.00 grams per cubic centimeter
Reaction - strongly to moderately acid

2BC horizon:
Hue - 2.5Y or 10YR
Value - 6 or 7 dry; 4 to 6 moist
Chroma - 2 or 3 dry or moist
Texture, less than 2 mm fraction - loamy sand, loamy coarse sand or coarse sandy loam
Pebbles - 30 to 60 percent
Cobbles, stones or boulders - 5 to 35 percent
Volcanic glass content in the 0.02 to 2.0 mm fraction - 50 to 95 percent
Ammonium oxalate extractable Al plus 1/2 Fe - less than 0.4 percent
Phosphate retention - less than 35 percent
Reaction - moderately or slightly acid

2C horizons:
Hue - 7.5YR to 5Y
Value - 3 to 5 dry, 2 to 5 moist
Chroma - 0 to 2 dry or moist
Texture, less than 2 mm fraction - sand or coarse sand
Pebbles - 30 to 60 percent
Cobbles, stones or boulders - 5 to 35 percent
Volcanic glass content in the 0.02 to 2.0 mm fraction - 60 to 90 percent
Ammonium oxalate extractable Al plus 1/2 Fe - less than 0.4 percent
Reaction - slightly acid or neutral

May 18, 1995

PIAL/CARO5,PICO Lasac, dry Ecological Type

This ecological type is named for the occurrence of whitebark pine/Ross' sedge habitat type, lodgepole pine phase on Lasac, dry soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting

Landforms: plateaus
Parent Material: local alluvium derived from mixed volcanic ejecta and loess
Slope range: 4 to 25 percent
Elevation: 6800 to 8300 feet
Average annual precipitation: 30 to 60 inches
Average annual temperature: 30 to 37 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Pinus albicaulis/Carex rossii* habitat type, *Pinus contorta* phase.

Present communities: The lodgepole pine/Ross' sedge c.t. is supported on lightly or nondisturbed areas. Depauperate communities dominated by Ross' sedge or elk sedge are supported in recent clearcut and scarified areas.

Vegetation Composition (N=2)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	100	9.7
Tree d.b.h. < 5 inches		
Abies lasiocarpa	50	1.0
Pinus albicaulis	100	1.5
Pinus contorta	100	3.5
Shrubs		
Vaccinium scoparium	100	0.7
Graminoids		
Carex geyeri	50	2.0
Carex rossii	100	1.5
Oryzopsis sp.	50	10.0
Forbs		
Corallorhiza sp.	50	0.5
Epilobium angustifolium	50	0.5
Hieracium albiflorum	50	0.5
Penstemon sp.	50	0.5

Soil

The soils of this ecological type are represented by the Lasac series, dry phase.

Taxonomic class: Ashy-skeletal Vitrandic Cryochrepts

Typical pedon description

Lasac gravelly sandy loam, in an elk sedge dominated clearcut; on slope of 10 percent with a southeast aspect; about 7650 feet elevation. (Colors are for air dry soil unless otherwise noted.)

A1--0 to 3 inches; dark grayish brown (10YR 4/2) gravely sandy loam, very dark brown (10YR 2/2) moist; weak coarse subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine irregular pores; 15 percent pebbles; moderately acid (pH 5.6); abrupt smooth boundary.

A2--3 to 6 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak very fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine irregular and few very fine tubular pores; 15 percent pebbles; moderately acid (pH 5.6); clear smooth boundary.

2Bw--6 to 12 inches; light yellowish brown (10YR 6/4) gravelly coarse sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine irregular pores; 20 percent pebbles; moderately acid (pH 5.6); clear wavy boundary.

2BC--12 to 20 inches; very pale brown (10YR 7/3) and yellowish brown (10 Y 5/4) very gravelly loamy sand, dark brown (10Y 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine roots, few very fine and fine roots; many very fine and fine irregular pores; 30 percent pebbles, 5 percent cobbles; slightly acid (pH 6.2); diffuse wavy boundary.

2C--22 to 60 inches; dark gray (2.5 Y 4/1) very gravelly coarse sand, very dark gray (2.5Y 3/1) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many fine

irregular pores; 45 percent pebbles, 5 percent cobbles, 5 percent stones and trace boulders; neutral (pH 6.8).

Typical pedon location
Legal description: about 100 feet south and 300 feet east of the northwest corner of section 28, T. 12 N., R, 45 E., ID.
Latitude: 44 degrees, 20 minutes, 37 seconds north.
Longitude: 111 degrees, 9 minutes, 1 seconds west.
Map unit in which located: 1570

Range of characteristics
Profile:
Depth class - very deep
Drainage - somewhat excessively drained
Ochric epipedon thickness - 4 to 8 inches
Depth to lithologic discontinuity - 10 to 14 inches
Depth of andic soil properties - 10 to 14 inches
Solum thickness - 14 to 20 inches
Volcanic glass in the 0.02 to 2.0 mm fraction - greater than 30 percent

O horizon:
Thickness - 0 to 2 inches thick
Form - commonly forest litter of needles, twigs and leaves on lightly or undisturbed pedons and absent on pedons where recent, heavy mechanical disturbance has occurred.

A horizon:
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 to 4 dry or moist
Volcanic glass content in the 0.02 to 2.0 mm fraction - 50 to 90 percent
Ammonium oxalate extractable Al plus 1/2 Fe - 0.4 to 1.0 percent
15-bar water (air dried samples) - 7 to 11 percent
Phosphate retention - 35 to 60 percent
Bulk density - 0.65 to 1.00 grams per cubic centimeter
Reaction - strongly or moderately acid

Bw horizon:
Value - 3 or 4 moist, 5 or 6 dry
Chroma - 3 to 6 dry or moist
Texture, less than 2 mm fraction - silt loam, sandy loam, coarse sandy loam
Pebbles - 10 to 35 percent
Cobbles, stones or boulders - 0 to 10 percent
Volcanic glass content in the 0.02 to 2.0 mm fraction - 50 to 90 percent
Ammonium oxalate extractable Al plus 1/2 Fe - 0.4 to 1.0 percent
15-bar water (air dried samples) - 7 to 11 percent
Phosphate retention - 35 to 60 percent
Bulk density - 0.80 to 1.00 grams per cubic centimeter
Reaction - strongly or moderately acid

2BC horizon:
Hue - 2.5Y or 10YR
Value - 6 or 7 dry; 4 to 6 moist
Chroma - 2 or 3 dry or moist
Texture, less than 2 mm fraction - loamy sand, loamy coarse sand or coarse sandy loam
Pebbles - 30 to 60 percent
Cobbles, stones or boulders - 5 to 35 percent
Volcanic glass content in the 0.02 to 2.0 mm fraction - 50 to 95 percent
Ammonium oxalate extractable Al plus 1/2 Fe - less than 0.4 percent
Phosphate retention - less than 35 percent
Reaction - moderately or slightly acid

2C horizons:
Hue - 7.5YR to 5Y
Value - 3 to 6 dry, 2 to 5 moist
Chroma - 0 to 2 dry or moist
Texture, less than 2 mm fraction - sand or coarse sand
Pebbles - 30 to 60 percent
Cobbles, stones or boulders - 5 to 35 percent
Volcanic glass content in the 0.02 to 2.0 mm fraction - 60 to 90 percent
Ammonium oxalate extractable Al plus 1/2 Fe - less than 0.4 percent
Reaction - slightly acid or neutral

PICO Perfa Ecological Type

This ecological type is named for the occurrence of lodgepole pine/pinegrass community type, lodgepole pine/elk sedge community type, or lodgepole on Perfa soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: dissected tablelands and outwash plains

Parent Material: mixed alluvium
Slope range: 0 to 4 percent
Elevation: 6300 to 6500 feet
Average annual precipitation: 28 to 32 inches
Average annual temperature: 36 to 40 degrees F.
Temperature regime: cryic
Moisture regime: oxyaquic

Vegetation
The potential natural vegetation of this ecological type is *Pinus contorta/Calamagrostis rubescens* community type, *Pinus contorta/Carex geyeri* community type or *Pinus contorta/vaccinium scoparium* community type.

Present communities: The lodgepole pine/pinegrass c.t. is supported on lightly or nondisturbed areas. Communities dominated by non-native grasses are supported in recent clearcut and scarified areas.

Vegetation Composition (N=2)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	50	5.0
Tree d.b.h. < 5 inches		
Pinus contorta	50	45.5
Populus tremuloides	50	8.0
Shrubs		
Arctostaphylos uva-ursi	50	8.0
Salix scouleriana	50	2.0
Symphoricarpos albus	50	0.5
Vaccinium caespitosum	50	2.0
Graminoids		
Calamagrostis rubescens	50	5.0
Carex geyeri	50	2.0
Carex rossii	50	1.0
Carex sp.	50	0.5
Danthonia intermedia	50	0.5
Koeleria nitida (cristata) (macrantha)	50	0.5
Poa nervosa var. wheeleri	50	1.0
Stipa occidentalis	50	0.5
Forbs		
Achillea millefolium	100	0.5
Antennaria microphylla	50	1.0
Antennaria parvifolia	50	0.5
Antennaria sp.	50	0.5
Artemisia michauxiana	50	0.5
Eriogonum sp	50	0.5
Fragaria virginiana	50	5.0
Geranium viscosissimum	50	0.5
Goodyera oblongifolia	50	0.5
Hieracium sp.	50	0.5
Lupinus sp.	50	0.5
Penstemon procerus	50	1.0
Potentilla gracilis	50	0.5
Rumex acetosella	50	0.5
Solidago sp.	50	0.5

Soil
The soils of this ecological type are represented by the Perfa series.

Taxonomic class: Sandy, mixed Oxyaquic Cryochrepts

Typical pedon description
Perfa sandy loam supporting a lodgepole pine/pinegrass community type; on a 1 percent slope; about 6290 feet elevation. (Colors are for dry soil unless otherwise noted.)

0e–1 to 0 inches; Forest litter; partially decomposed needles, twigs and cones; abrupt smooth boundary.

A–0 to 3 inches; dark grayish brown (10YR 4/2) sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine, few medium and coarse roots; common fine irregular pores; 10 percent pebbles; strongly acid (pH 5.4); abrupt smooth boundary.

Bw1–3 to 5 inches; brown (10YR 5/3) sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine, few medium and coarse roots; common fine irregular pores; 10 percent pebbles; strongly acid (pH 5.4); abrupt smooth boundary.

Bw2–5 to 11 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 4/3) moist; common medium yellowish brown (10YR 5/6) moist and few fine strong brown (7.5YR 5/6) moist, iron concentrations; moderate medium subangular blocky structure; soft, very friable slightly sticky and slightly plastic; common fine roots; common fine irregular pores; 10 percent pebbles; moderately acid (pH 5.6); clear smooth boundary.

2C1--11 to 19 inches; very pale brown (10YR 7/3) gravelly loamy coarse sand, dark yellowish brown (10YR 4/4) moist; common medium strong brown (7.5YR 4/6) moist, iron concentrations; massive; soft, very friable, nonsticky and nonplastic; few fine roots; many very fine and fine irregular pores; 20 percent pebbles; slightly acid (pH 6.2); gradual smooth boundary.

2C2--19 to 44 inches; variegated gravelly coarse sand; few one inch horizontal bands strong brown (7.5YR 5/6) moist, iron concentrations; massive; soft, very friable, nonsticky and nonplastic; few fine and medium roots; many fine and very fine irregular pores; 30 percent pebbles; slightly acid (pH 6.4); gradual wavy boundary.

2C3--44 to 62 inches; variegated gravelly coarse sand; single grained; loose; few fine roots; many very fine and fine irregular pores; 25 percent pebbles; slightly acid (pH 6.4).

Typical pedon location
Legal description: about 200 feet north and 100 feet east of the northwest corner of sec. 6, T.12N., R.44E., ID.
Latitude: 44 degrees, 23 minutes, 55 seconds north.
Longitude: 111 degrees, 18 minutes, 40 seconds west.
Map unit in which located: 2040

Range in characteristics
Profile:
Depth class - very deep
Drainage class - moderately well drained
Depth to redox concentrations - 4 to 23 inches.
Depth to discontinuity - 10 to 15 inches.
Control section rock fragments - averages 15 to 35 percent.
Water table, depth - 6 to 36
Water table, kind - apparent
Water table, duration - April to June

A horizons:
Value - 4 or 5 dry, 3 or 4 moist
Chroma - 1 to 4 dry and moist
Rock fragments - 0 to 10 percent
Reaction - strongly acid or slightly acid

Bw horizons:
Value - 5 to 7 dry, 3 to 6 moist
Chroma - 2 or 3 dry and 2 to 4 moist
Redox concentrations - hue of 10YR or 7.5YR value of 4 to 6 moist
Rock fragments - 0 to 25 percent, mostly pebbles
Reaction - strongly acid to slightly acid

C horizons:
Redox concentrations - hue of 10YR or 7.5YR value of 4 or 5 moist
Rock fragments - 15 to 35 percent, mostly pebbles
Reaction - moderately acid to slightly acid

PICO Stamp, dry Ecological Type

This ecological type is named for the occurrence of lodgepole pine/pinegrass community type, lodgepole pine/elk sedge community type, or lodgepole pine/grouse whortleberry community type on Stamp, dry soils.

Environmental Setting
Landforms: outwash plains
Parent Material: alluvium derived from diatomaceous earth materials over obsidian sands
Slope range: 0 to 2 percent
Elevation: 6360 to 6460 feet
Average annual precipitation: 28 to 32 inches
Average annual temperature: 36 to 40 degrees F.
Temperature regime: cryic
Moisture regime: aquic

Vegetation
The potential natural vegetation of this ecological type is *Pinus contorta/Calamagrostis rubescens* community type, *Pinus contorta/Carex geyeri* community type, or *Pinus contorta/Vaccinium scoparium* community type.

Present communities: The lodgepole pine/pinegrass c.t., lodgepole pine/elk sedge c.t., and the lodgepole pine/grouse whortleberry c.t. are commonly supported.

Vegetation Composition (N=3)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	66	11.0

Tree d.b.h. < 5 inches		
Pinus contorta	100	25.0
Pinus flexilis	33	0.5
Populus tremuloides	33	0.5
Shrubs		
Arctostaphylos uva-ursi	66	2.7
Lonicera involucrata	33	0.5
Lonicera utahensis	33	0.5
Salix bebbiana	66	2.7
Salix scouleriana	33	1.0
Spiraea betulifolia	33	2.0
Vaccinium caespitosum	33	4.0
Vaccinium scoparium	66	2.5
Graminoids		
Agrostis scabra	33	0.5
Calamagrostis canadensis	33	2.0
Calamagrostis rubescens	66	17.7
Carex geyeri	66	9.0
Carex rossii	33	3.0
Danthonia intermedia	33	3.0
Deschampsia cespitosa	33	0.5
Poa palustris	33	0.5
Trisetum spicatum	33	0.5
Forbs		
Antennaria corymbosa	33	5.0
Antennaria microphylla	33	5.0
Aster occidentalis	33	2.0
Aster sp.	33	2.0
Campanula rotundifolia	33	0.5
Epilobium angustifolium	66	0.5
Eriogonum sp	33	4.0
Fragaria virginiana	66	4.5
Gaultheria humifusa	33	3.0
Hieracium albiflorum	33	2.0
Solidago nana	33	1.0
Senecio pauperculus	33	0.5
Spiranthes romanzoffiana	33	0.5
unknown forbs (may be more than one sp.)	33	5.0

Soil

The soils of this ecological type are represented by the Stamp series, dry phase.

Taxonomic class: Coarse-loamy, mixed Aquic Cryochrepts

Typical pedon description

Stamp loam supporting a lodgepole pine community, woodland; on a 1 percent slope; about 6390 feet elevation. (Colors are for dry soil unless otherwise noted.)

O--1 to 0 inches; forest litter; needles, cones and twigs.

A--0 to 1 inches; dark brownish gray (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine through coarse roots; common fien irregular pores; moderately acid (pH 5.6); clear smooth boundary.

AB--1 to 6 inches; white (10YR 8/1) silt loam, light brownish gray (10YR 6/2) moist; moderate medium and coarse platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine through coarse roots; common fine irregular pores; moderately acid (pH 5.6); clear smooth boundary.

Bw1--6 to 14 inches; very pale brown (10YR 8/2) silt loam, light brownish gray (2.5Y 6/2) moist; few medium distinct olive yellow (2.5Y 6/6) iron concentrations; moderate fine and medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine, many medium and coarse roots; common fine irregular pores; moderately acid (pH 5.8); clear smooth boundary.

Bw2--14 to 21 inches; 50 percent very pale brown (10YR 8/3) and 50 percent very pale brown (10YR 8/2) loam, light yellowish brown (2.5Y 6/3) and light yellowish gray (2.5Y 6/2) moist; common medium olive yellow (2.5Y 6/6) iron concentrations; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many fine irregular pores; 5 percent pebbles; moderately acid (pH 5.6); clear smooth boundary.

2C--21 to 60 inches; varigated gravelly coarse sand; 2 to 5 cm bands of fine sand with common medium distinct olive yellow (2.5Y 6/6) iron concentrations and common coarse faint bluish gray (5B 5/1) iron depletions (about 5 percent of the profile); single grain, loose, nonsticky and nonplastic; many fine irregular pores; 20 percent pebbles; slightly acid (pH 6.2).

Typical pedon location

Legal description: about 500 feet north and 500 feet east of the southwest corner of sec. 34, T.14N., R.44E., ID.
Latitude: 44 degrees, 29 minutes, 34 seconds

north.
Longitude: 111 degrees, 15 minutes, 9 seconds west.
Map unit in which located: 2040

Range in characteristics
Profile:
Depth class - very deep
Drainage class - somewhat poorly drained
Water table, depth - 0 to 36
Water table, kind - apparent
Water table, duration - January to June
Depth to redox concentrations - 2 to 25 inches.

A horizons:
Value - 4 to 7 dry, 2 to 4 moist
Chroma - 1 to 3 dry or moist
Reaction - moderately acid to neutral

Bw horizons:
Hue - 10YR to 5Y
Value - 5 to 8 dry, 3 to 5 moist
Chroma - 2 to 4 dry or moist
Rock fragments - 0 to 15 percent
Reaction - moderately acid to neutral

C horizons:
Redox concentrations - few or common, fine or medium, faint or distinct
Rock fragments - 0 to 30 percent
Reaction - moderately acid to slightly alkaline

PICO/ARTRV Spliten Ecological Type

This ecological type is named for the occurrence of quaking aspen-lodgepole pine/whortleleaf snowberry community type and mountain big sagebrush habitat type on Spliten soils.

Environmental Setting
Landforms: caldera floor
Parent Material: loess and residual rock fragments
Slope range: 0 to 4 percent
Elevation: 5900 to 6400 feet
Average annual precipitation: 20 to 30 inches
Average annual temperature: 37 to 40 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Populus tremuloides-Pinus contorta/Symphoricarpos oreophilus* community type and *Artemisia tridentata* ssp. *vaseyana/Festuca idahoensis* habitat type ecotone.

Present communities: Communities dominated by mountain big sagebrush or antelope bitterbrush and California brome, prairie Junegrass, Idaho fescue, other native or non-native grasses or weedlike forbs are commonly supported. Widely dispersed, seedling through medium sized trees of lodgepole pine occur in some areas.

Vegetation Composition (N=5)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	80	6.7
Tree d.b.h. < 5 inches		
Pinus contorta	60	1.0
Shrubs		
Artemisia tridentata ssp. vaseyana	100	10.2
Purshia tridentata	80	6.5
Graminoids		
Agropyron sp.	20	0.5
Agropyron (Pseudoroegneria) spicatum inerme	20	0.5
Agropyron trachycaulum	20	3.0
Agrostis scabra	20	0.5
Bromus carinatus	20	6.0
Bromus inermis	40	2.0
Carex sp.	20	1.0
Festuca idahoensis	40	2.5
Koeleria nitida (cristata) (macrantha)	80	2.2
Melica bulbosa	20	1.0
Phleum pratense	20	0.5
Poa pratensis	40	0.5
Sitanion hystrix	40	0.5
Stipa sp.	60	0.5
Stipa occidentalis	40	2.5
Forbs		
Achillea millefolium	60	0.5
Antennaria luzuloides	100	9.8
Aster integrifolius	80	1.7
Aster sp.	40	0.5
Calochortus eurycarpus	20	0.5
unknown Chenopodiaceae	20	0.5
Epilobium minutum	40	1.0

Eriogonum heracleoides	80	3.2
Eriogonum sp	20	3.0
Eriogonum umbellatum	20	2.0
Helianthella uniflora	40	3.0
Hieracium sp.	20	0.5
Lupinus argenteus	20	0.5
Lupinus sp.	20	0.5
Polygonum douglasii	80	3.3
Potentilla glandulosa	40	0.5
Solidago missouriensis	20	2.0

Soil
The soils of this ecological type are represented by the Spliten series.

Taxonomic class: Loamy, mixed Lithic Cryoborolls

Typical pedon description
Spliten cobbly loam supporting a depauperate community dominated by mountain big sagebrush, antelope bitterbrush and weed like forbes; on a 2 percent slope; about 6,164 feet elevation. (Colors are for dry soil unless otherwise noted.)

A--0 to 3 inches; brown (10YR 5/3) cobbly loam, dark brown (7.5YR 3/2) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine roots; common fine irregular pores; 15 percent cobbles; strongly acid (pH 5.2); clear smooth boundary.

Bw--3 to 12 inches; yellowish brown (10YR 5/4) cobbly loam, dark brown (7.5YR 3/3) moist; moderate coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine, and few medium roots; few fine and medium tubular pores; 15 percent cobbles; strongly acid (pH 5.2); abrupt smooth boundary.

R--12 inches; unweathered basalt.

Typical pedon location
Legal description: approximately 16 miles north of Ashton; about 1200 feet south and 2100 feet east of the northwest corner of sec. 9, T.11N., R.43E., ID.
Latitude: 44 degrees, 17 minutes, 54 seconds north.
Longitude: 111 degrees, 23 minutes, 6 seconds west.
Map unit in which located: 1000

Range in characteristics
Profile:
Depth class - shallow
Drainage class - well drained
Depth to lithic contact - 10 to 20 inches
Mollic epipedon thickness - 7 to 14 inches
Base Saturation of the mollic epipedon - 50 to 80 percent
Rock fragments in the particle size control section averages - 5 to 25 percent, mostly cobbles
Clay content - 8 to 16 percent
Reaction - moderately or strongly acid

A horizons:
Hue - 7.5YR or 10YR
Chroma - 2 or 3 dry and moist

Bw horizon:
Hue - 7.5YR or 10YR
Chroma - 2 to 4 dry, 2 or 3 moist

PICO/ARTRV Vadnais Ecological Type

This ecological type is named for the occurrence of quaking aspen-lodgepole pine/whortleleaf snowberry community type and mountain big sagebrush/Idaho fescue habitat type ecotone on Vadnais soils.

Environmental Setting
Landforms: plains
Parent Material: local alluvium derived from loess and coarser eolian materials
Slope range: 1 to 12 percent
Elevation: 6300 to 6900 feet
Average annual precipitation: 20 to 26 inches
Average annual temperature: 37 to 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Populus tremuloides-Pinus contorta/Symphoricarpos oreophilus* community type and *Artemisia tridentata* ssp. *vaseyana/Festuca idahoensis* habitat type ecotone.

Present communities: The mountain big sagebrush/Idaho fescue h.t or communities dominated by mountain big sagebrush or antelope bitterbrush and bluebunch wheatgrass, prairie Junegrass, timber oatgrass or other native or non-native grasses; or a mosaic of the mountain big sagebrush/Idaho fescue h.t., the quaking aspen-lodgepole pine/whortleleaf snowberry c.t., and communities dominated by mountain big sagebrush and bluebunch wheatgrass, prairie Junegrass, timber oatgrass, pinegrass or other native or non-native grasses are commonly supported. Widely dispersed seedling through medium sized trees of lodgepole pine occur in some areas.

Vegetation Composition (N=6)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	16	1.0
Populus tremuloides	16	2.5
Tree d.b.h. < 5 inches		
Pinus contorta	50	2.1
Populus tremuloides	16	5.0
Shrubs		
Artemisia tridentata ssp. vaseyana	100	13.8
Berberis repens	16	0.5
Chrysothamnus nauseosus	16	0.5
Purshia tridentata	83	2.0
Symphoricarpos oreophilus	33	0.5
Graminoids		
Agropyron sp.	16	0.5
Agropyron (Pseudoroegneria) spicatum	16	0.5
Agropyron trachycaulum	50	1.5
Bromus anomalus	16	0.5
Bromus carinatus	33	2.5
Calamagrostis rubescens	33	0.5
Carex filifolia	33	3.0
Carex petasata	33	0.5
Danthonia intermedia	66	3.5
Danthonia unispicata	16	0.5
Festuca idahoensis	100	12.5
Koeleria nitida (cristata) (macrantha)	83	4.9
Poa nervosa	16	2.0
Poa nevadensis	16	0.5
Poa pratensis	16	1.0
Poa scabrella	16	0.5
Poa sp.	16	0.5
Stipa columbiana	16	0.5
Stipa sp.	50	9.3
Trisetum spicatum	16	0.5
Forbs		
Achillea millefolium	83	1.7
Agoseris glauca	50	0.6
Allium acuminatum	16	0.5
Allium sp.	16	0.5
Antennaria microphylla	50	1.3
Antennaria racemosa	16	0.5
Antennaria sp.	33	8.5
Arabis drummondii	33	0.5
Arabis holboellii	16	0.5
Arabis sp.	16	0.5
Arenaria congesta	33	0.5
Arnica cordifolia	16	1.0
Artemisia ludoviciana	16	2.0
Aster sp.	16	1.0
Calochortus eurycarpus	16	0.5
Calochortus sp.	16	0.5
Campanula rotundifolia	16	0.5
Castilleja longispica	16	0.5
Collinsia parviflora	33	0.5
Collomia grandiflora	16	0.5
unknown Compositae	16	0.5
Crepis acuminata	16	3.0
Delphinium bicolor	16	0.5
Epilobium angustifolium	16	1.0
Epilobium minutum	16	0.5
Erigeron pumilus	16	0.5
Eriogonum heracleoides	16	3.0
Eriogonum sp	50	6.3
Eriogonum umbellatum	16	1.0
Eriophyllum lanatum	33	1.2
Frasera speciosa	16	1.0
Geranium viscosissimum	50	0.6
Geum triflorum	50	2.0
Helianthella uniflora	16	0.5
Linum perenne (lewisii)	16	0.5
Lomatium triternatum	16	0.5
Lupinus argenteus	16	1.0
Lupinus sericeus	50	1.0
Microseris troximoides	16	0.5
Nemophila parviflora	16	0.5
Oenothera caespitosa (cespitosa)	16	0.5
Penstemon sp.	16	0.5
Penstemon rydbergii	16	1.0
Perideridia gairdneri	16	0.5
Phacelia hastata	16	0.5
Phlox longifolia	16	0.5
Polygonum bistortoides	16	0.5
Polygonum douglasii	16	0.5
Potentilla glandulosa	50	0.8

Potentilla gracilis	50	0.5
Rumex paucifolius	33	0.5
Solidago missouriensis	33	0.5
Taraxacum officinale	33	0.7
Tragopogon dubius	16	0.5
Wyethia amplexicaulis	16	0.5
Wyethia helianthoides	16	0.5
unknown forbs (may be more than one sp.)	33	5.0

Soils
The soils of this ecological type are represented by the Vadnais series.

Taxonomic class: Fine-loamy, mixed Argic Pachic Cryoborolls

Typical pedon description
Vadnais silt loam, supporting a mountain big sagebrush/Idaho fescue community type, on an undulating slope of 3 percent under an east aspect; about 6540 feet elevation. (Colors are for dry soil unless otherwise noted.)

A1--0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure parting to moderate very fine granular; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; many very fine irregular pores; moderately acid (pH 6.0); abrupt smooth boundary.

A2--4 to 12 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate very coarse subangular blocky structure parting to strong medium subangular blocky; hard, very friable, nonsticky and slightly plastic; common very fine and few fine roots, many very fine tubular pores; moderately acid (pH 6.0); clear smooth boundary.

Bt1--12 to 18 inches; yellowish brown (10YR 5/4) loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to strong fine subangular blocky; hard, friable, slightly sticky and plastic; few very fine and fine roots; few very fine tubular pores; few faint clay films on ped faces and in pores; many cicada nodules; trace pebbles and cobbles; slightly acid (pH 6.2); clear smooth boundary.

Bt2--18 to 30 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to strong medium subangular blocky; hard, firm, slightly sticky and plastic; few very fine roots; common very fine tubular pores; common faint clay films on ped paces and in pores; common prominent uncoated silt grains on ped faces; trace pebbles and cobbles; slightly acid (pH 6.4); abrupt wavy boundary.

R--30 inches; vesicular basalt bedrock.

Typical pedon location
Legal description: about 250 feet west and 50 feet south of the northeast corner of section 11, T. 12 N., R. 40 E., ID.
Latitude: 44 degrees, 23 minutes, 25 seconds north.
Longitude: 111 degrees, 41 minutes, 50 seconds west.
Map unit in which located: 1046

Range in characteristics
Profile:
Depth class - moderately deep
Drainage class - well drained
Mollic epipedon thickness - 17 to 38 inches
Depth to bedrock - 20 to 40 inches
Reaction - moderately or slightly acid

A horizons:
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry or moist
Rock fragments - 0 to 5 percent

Bt horizons:
Value - 4 or 5 dry, 3 or 4 moist
Chroma - 3 or 4 dry or moist
Texture, less than 2 mm fraction - silt loam or loam
Rock fragments - 0 to 10 percent

PICO/VASC Islandpark Ecological Type

This ecological type is named for the occurrence of lodgepole pine/grouse whortleberry community type on Islandpark soils.

Environmental Setting
Landforms: caldera floor

Parent Material: loess
Slope range: 0 to 8 percent
Elevation: 5900 to 6400 feet
Average annual precipitation: 20 to 28 inches
Average annual temperature: 37 to 40 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Pinus contorta/Vaccinium scoparium* community type.

Present communities: The lodgepole pine/elksedge c.t., lodgepole pine/pinegrass c.t., lodgepole pine/grouse whortleberry c.t., and lodgepole pine/non-native grass communities are supported in plantations. Clearcut and scarified areas commonly support communities dominated by non-native grasses or elk sedge.

Vegetation Composition (N=8)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	37	17.0
Tree d.b.h. < 5 inches		
Pinus contorta	62	8.7
Populus tremuloides	12	1.0
Pseudotsuga menziesii	25	1.5
Shrubs		
Amelanchier alnifolia	50	1.8
Arctostaphylos uva-ursi	25	5.5
Lonicera utahensis	25	11.0
Salix scouleriana	12	2.0
Salix spp.	12	5.0
Sorbus scopulina	25	1.5
Spiraea betulifolia	25	6.0
Symphoricarpos albus	12	3.0
Vaccinium scoparium	62	25.4
Graminoids		
Agropyron trachycaulum	37	1.3
Agrostis stolonifera	12	0.5
Bromus carinatus	62	2.5
Bromus inermis	12	5.0
Calamagrostis rubescens	75	13.5
Carex geyeri	12	25.0
Carex hoodii	25	0.5
Carex rossii	50	10.7
Carex sp.	25	3.5
Dactylis glomerata	12	8.0
Danthonia intermedia	12	3.0
Festuca idahoensis	25	1.7
Koeleria nitida	37	1.8
(cristata) (macrantha)		
Melica bulbosa	37	3.6
Phleum pratense	25	2.0
Poa pratensis	62	2.1
Poa secunda	12	2.0
Poa sp.	12	0.5
Stipa occidentalis	37	1.5
Stipa sp.	12	1.0
Forbs		
Achillea millefolium	62	2.9
Antennaria luzuloides	25	10.0
Antennaria sp.	12	1.0
Arnica cordifolia	37	3.0
Aster sp.	12	0.5
Campanula rotundifolia	12	3.0
Collomia linearis	25	3.0
unknown Compositae	12	2.0
Epilobium angustifolium	50	7.0
Epilobium sp.	0	0.0
Erigeron divergens	12	1.0
Erigeron sp.	12	0.5
Eriophyllum lanatum	25	0.7
Fragaria sp.	12	1.0
Fragaria virginiana	25	1.5
Geranium viscosissimum	62	3.1
Hieracium sp.	25	0.5
Lomatium ambiguum	25	2.0
Lupinus argenteus	62	3.4
Lupinus leucophyllus	25	0.7
Lupinus sericeus	12	1.0
Lupinus sp.	12	0.5
Machaeranthera canescens	12	0.5
Osmorhiza chilensis	25	1.0
Perideridia gairdneri	25	0.5
Polygonum douglasii	37	9.0
Potentilla arguta	12	1.0
Potentilla glandulosa	37	1.8
Potentilla gracilis	12	1.0
Potentilla sp.	12	1.0
Pterospora andromedea	12	0.5
Selaginella sp.	12	1.0
Solidago missouriensis	12	5.0
Solidago sp.	25	5.5
Taraxacum officinale	25	0.5
Trifolium hybridum	12	0.5
Wyethia helianthoides	12	1.0
unknown forbs w/ > trace cover	25	6.5

Soil

The soils of this ecological type are represented by the Islandpark series.

Taxonomic class: Coarse-silty, mixed Typic Paleboralfs

Typical pedon description
Islandpark silt loam; supporting a lodgepole pine/pinegrass community type, woodland; on a concave slope of 3 percent with a south facing aspect at 5,980 feet elevation. (Colors are for dry soil unless otherwise noted.)

A1--0 to 6 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine through medium roots; few very fine irregular pores; very strongly acid (pH 4.8); abrupt wavy boundary.

E1--6 to 14 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common fine and medium tubular pores; strongly acid (pH 5.4); gradual smooth boundary.

E2--14 to 36 inches; very pale brown (10YR 7/3) silt loam, dark grayish brown (10YR 4/2) moist; strong coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and medium roots; few fine tubular pores; few fine (less than 5 mm) light yellowish brown (10YR 5/4) lamellae strongly acid (pH 5.4); clear smooth boundary.

E/B1--36 to 51 inches; 95 percent very pale brown (10YR 7/3) E material, dark brown (10YR 4/3) moist and 5 percent light yellowish brown (10YR 6/4) B material as fine (less than 5 mm) veins and lamellae, dark yellowish brown (10YR 4/4) moist that mix to a silt loam; moderate coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium roots; few fine and medium tubular pores; moderately acid (pH 5.8); clear wavy boundary.

E/B2--51 to 65 inches; 90 percent very pale brown (10YR 7/3) E material, dark brown (10YR 4/3) moist and 10 percent yellowish brown (10YR 6/4) B material as fine (less than 5 mm) veins and lamellae, dark yellowish brown (10YR 4/4) moist that mix to a loam; weak medium subangular blocky structure; soft, very friable, slightly sticky, plastic; common fine roots; few fine and medium tubular pores; moderately acid (pH 5.8); abrupt wavy boundary.

Bt--65 to 75 inches; brown (7.5YR 5/4) clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; few very fine tubular pores; common faint clay films bridging mineral grains; 10 percent pebbles; common uncoated sand grains on faces of peds; slightly acid (pH 6.2); abrupt wavy boundary.

R--75 inches; hard basalt bedrock.

Typical pedon location
Legal description: about 500 feet south and 2300 feet west of the northeast corner of section 13, T. 10 N., R. 43 E., ID.
Latitude: 44 degrees, 12 minutes, 1 seconds north.
Longitude: 111 degrees, 19 minutes, 25 seconds west.
Map unit in which located: 1000

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Clay in particle-size control section averages - 8 to 12 percent
Depth to argillic horizon - 40 to 70 inches
Depth to hard bedrock - 60 to 100 inches

A horizon:
Value: 5 or 6 dry; 2 to 4 moist
Chroma: 2 to 4 dry or moist
Color: value after mixing the upper 7 inches is greater than 5 dry and 3 moist
Reaction: very strongly or strongly acid

E horizons:
Value: 6 or 7 dry; 3 or 4 moist
Chroma: 2 or 3 dry or moist
Texture: silt loam or loam
Reaction: very strongly to moderately acid
Rock fragments: 0 to 15 percent

E/B horizons:
E portion -
Value: 6 or 7 dry, 4 or 5 moist
Chroma: 2 or 3 dry or moist
Volume of E material: 85 to 95 percent
B portion -
Hue: 10YR or 7.5YR
Value: 5 or 6 dry; 4 or 5
Chroma: 2 to 4 dry or moist
Volume of B material: 5 to 15 percent
Texture: silt loam or loam

Reaction: moderately or strongly acid
Rock fragments: 0 to 15 percent

Bt horizons:
Hue: 10YR or 7.5YR
Value: 5 or 6 dry; 3 or 4 moist
Chroma: 3 or 4 dry or moist
Reaction: moderately to slightly acid
Rock fragments: 0 to 20 percent
Texture - clay loam, gravelly clay loam, or gravelly loam

PIEN Cryaquolls, cobbly substratum Ecological Type

This ecological type is named for the occurrence of Engelmann's spruce/field horsetail h.t. or Engelmann's spruce/fragrant bedstraw habitat type on Cryaquolls, cobbly substratum soils.

Environmental Setting

Landforms: floodplains
Parent Material: mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5600 to 7800 feet
Average annual precipitation: 18 to 30 inches
Average annual temperature: 34 to 40 degrees F.
Temperature regime: cryic
Moisture regime: aquic

Vegetation

The potential natural vegetation of this ecological type is *Picea engelmannii/Equisetum arvense* habitat type or *Picea engelmannii/Galium triflorum* habitat type.

Present communities: The Engelmann's spruce/fragrant bedstraw h.t., Engelmann's spruce/field horsetail h.t., Booth's willow/starry false Solomon's seal c.t., mountain alder/northern black current c.t., Geyer willow/mesic forb c.t., Bebb willow/stinging nettle community, and Engelmann's spruce/red baneberry community are supported.

Vegetation Composition (N=5)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	20	1.0
Picea engelmannii	100	8.6
Pseudotsuga menziesii	20	13.0
Tree d.b.h. < 5 inches		
Abies lasiocarpa	20	2.5
Picea engelmannii	80	1.3
Pseudotsuga menziesii	20	0.5
Shrubs		
Amelanchier alnifolia	20	0.5
Lonicera involucrata	20	6.0
Lonicera utahensis	20	1.0
Prunus virginiana ssp. melanocarpa	20	0.5
Ribes sp.	20	5.0
Ribes hudsonianum	20	0.5
Ribes inerme	20	0.5
Ribes lacustre	80	7.7
Rosa sp.	40	0.5
Rubus idaeus (ssp. sachalinensis) gracilipes	20	0.5
Salix bebbiana	20	50.0
Salix boothii	20	25.0
Salix drummondiana	40	10.5
Salix geyerana	40	8.0
Salix lutea	20	1.0
Sorbus scopulina	20	1.0
Symphoricarpos oreophilus	40	0.5
Graminoids		
Agropyron dasystachyum	20	0.5
Agropyron (Pseudoroegneria) spicatum	20	0.1
Bromus ciliatus	20	0.5
Bromus sp.	60	3.0
Calamagrostis canadensis	20	3.0
Carex geyeri	20	0.5
Carex microptera	20	0.5
Carex norvegica	20	0.5
Carex sp.	40	4.2
Carex rostrata	20	0.5
Elymus glaucus	20	0.5
Luzula parviflora	20	0.1
Poa sp.	20	7.0
Poa compressa	20	0.1
Poa palustris	40	0.5
Unknown grasses w/ >trace cover	20	8.0
Forbs		
Aconitum columbianum	20	4.0
Achillea millefolium	20	0.5
Actaea rubra	20	5.0
Allium sp.	40	0.1

Angelica arguta	20	0.5
Aquilegia formosa	20	25.0
Arnica cordifolia	20	0.5
Aster engelmannii	20	1.0
Astragalus miser	20	0.5
Aster occidentalis	20	10.0
Epilobium angustifolium	80	9.3
Epilobium sp.	20	0.1
Equisetum arvense	20	35.0
Fragaria vesca	20	0.5
Fragaria virginiana	60	10.0
Galium sp.	20	2.0
Galium triflorum	20	0.5
Geum macrophyllum	20	0.5
Geranium richardsonii	40	2.2
Geranium viscosissimum	20	0.5
Hackelia micrantha (jessicae)	20	0.5
Heracleum lanatum (maximum)	80	4.0
unknown Labiatae	20	0.5
Mertensia paniculata	60	0.6
Osmorhiza chilensis	60	0.4
Perideridia gairdneri	20	0.5
Potentilla glandulosa	80	0.2
Potentilla gracilis	20	0.1
Rudbeckia occidentalis	20	20.0
Saxifraga arguta (odontoloma)	20	0.1
Senecio sp.	20	2.0
Senecio serra	20	0.5
Smilacina racemosa	20	0.5
Smilacina stellata	60	1.5
Solidago multiradiata	20	0.5
Streptopus amplexifolius	20	0.5
Taraxacum officinale	20	0.1
Thalictrum occidentale	40	4.0
Urtica dioica	60	16.7
Viola sp.	20	0.1

Soil
The soils of this ecological type are represented by the Cryaquolls great group, cobbly substratum phase.

Taxonomic class: Cryaquolls

Typical pedon description
Cryaquolls, cobbly substratum; supporting a Engelmann's spruce/fragrant bedstraw h.t., woodland; on a 5 percent slope at 6350 feet elevation. (Colors are for dry soil unless otherwise stated.)

A1--0 to 6 inches; fine sandy loam, black (10YR 2/1) moist; moderate fine granular; soft, very friable, nonsticky and slightly plastic; many very fine and common fine roots; many very fine irregular pores; trace boulders; slightly acid (pH 6.1); abrupt wavy boundary.

A2--6 to 20 inches; sandy loam, black (10YR 2/1) moist; weak very coarse subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine roots; common very fine irregular pores; slightly acid (pH 6.1); abrupt wavy boundary.

2C1--20 to 30 inches; stratified fine sandy loam, sandy loam and gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; common medium distinct (10YR 3/3-4) iron concentrations; massive and single grain; soft to loose, nonsticky and nonplastic; few very fine roots; many very fine irregular and few very fine tubular pores; o to 20 percent pebbles, trace boulders; slightly acid (pH 6.1); abrupt wavy boundary.

2C2--30 to 60 inches; varigated extremely cobbly loamy sand; loose, nonsticky and nonplastic; few very fine and fine roots; many medium and coarse irregular pores; 35 percent pebbles, 45 percent cobbles, 5 percent boudlers; slightly acid (pH 6.1).

Typical pedon location
Legal description about 850 feet east and 1700 feet north of the southwest corner of section 2, T.11N., R.44E., ID.
Latitude: 44 degrees, 18 minutes, 17 seconds north.
Longitude: 111 degrees, 13minutes, 46 seconds west.
Map Unit in which located: 2609

Range in characteristics
Profile:
Depth class - very deep
Drainage class - somewhat poorly drained
Water table, depth - + 6 to 18 inches
Water table, kind - apparent
Water table, duration - all year
Depth to redox concentrations - 2 to 18 inches
Thickness of mollic epipedon - 7 to 30 inches
Depth of solum - 15 to 40 inches
Depth to lithologic discontinuity - 15 to greater than 60 inches
Reaction - slightly acid to neutral
Other - An Oe horizon, 1 to 8 inches thick is

present on some pedons.

A horizons:
Hue - 7.5YR or 10YR
Value - 3 or 4 dry, 2 or 3 moist
Chroma - 1 or 2 dry or moist
Texture - silt loam or loam
Clay - 7 to 27 percent
Pebbles - 0 to 15 percent

B horizons:
Hue - 7.5YR to 2.5Y
Value - 4 or 5 dry, 3 or 4 moist
Chroma - 1 or 2 dry or moist
Redox concentrations, hue - 5YR to 5Y
Value - 2 or 4 dry or moist
Chroma - 0 to 6 dry or moist
Texture - silt loam, silty clay loam, or loam
Clay - 15 to 30 percent
Pebbles - 0 to 15 percent
Other - horizon is absent in some pedons

C horizons:
Hue - 10YR to 5Y
Value - 5 to 7 dry, 4 to 6 moist
Chroma - 1 or 2 dry or moist
Redox concentrations, hue - 5YR to 5Y
Value - 2 to 4 dry or moist
Chroma - 0 to 6 dry or moist
Texture - stratified silt loam, loam, very fine sandy loam, fine sandy loam, sandy loam or gravelly sandy loam
Clay - 4 to 20 percent
Pebbles - 0 to 25 percent

2C horizons:
Texture - stratified very gravelly loam, very gravelly sandy loam, extremely gravelly sandy loam, extremely gravelly loamy sand, extremely gravelly sand, extremely cobbly sandy loam, extremely cobbly loamy sand, extremely cobbly loamy coarse sand, extremely cobbly sand or extremely cobbly coarse sand
Clay - 1 to 12 percent
Rock fragments - 35 to 90 percent

PIFL2/HEKI Fritz Ecological Type

This ecological type is named for the occurrence of limber pine/spike fescue habitat type on Fritz soils.

Environmental Setting
Landforms: mountains
Parent Material: colluvium derived from limestone and loess
Slope range: 45 to 70 percent
Elevation: 7400 to 9800 feet
Average annual precipitation: 16 to 22 inches
Average annual temperature: 37 to 43 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation
The potential natural vegetation of this ecological type is *Pinus flexilis/Hesperochloa kingii* habitat type.

Present communities: The limberpine/spike fescue h.t. is dominantly supported. Limberpine/curlleaf mountain mahogany community, mountain big sagebrush/bluebunch wheatgrass community and communities dominated by curlleaf mountain mahogany are supported on mid and lower sideslopes.

Vegetation Composition (N=17)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Juniperus scopulorum	5	5.0
Pinus flexilis	58	12.7
Pseudotsuga menziesii	52	5.1
Tree d.b.h. < 5 inches		
Juniperus scopulorum	23	4.8
Juniperus sp.	5	4.0
Juniperus sp. (tree)	5	4.0
Pinus flexilis	29	0.9
Pseudotsuga menziesii	23	0.6
Shrubs		
Artemisia nova	29	2.4
Artemisia tridentata ssp. vaseyana	58	4.8
Artemisia tridentata ssp. wyomingensis	5	0.5
Cercocarpus ledifolius	70	18.7
Chamaebatiaria millefolium	5	0.5
Chrysothamnus viscidiflorus	76	0.5
Juniperus communis	17	0.6
Ribes sp.	5	0.5
Ribes cereum	47	0.5
Ribes montigenum	11	0.7
Shepherdia canadensis	5	0.5

Symphoricarpos oreophilus	23	0.5
Tetradymia canescens	11	0.5
Graminoids		
Agropyron (Pseudoroegneria) spicatum	70	7.3
Bromus sp.	5	1.0
Carex sp.	47	1.6
Carex rossii	5	0.5
Carex vallicola	5	0.5
Festuca idahoensis	11	10.5
Hesperochloa kingii	58	3.0
Hordeum jubatum	23	0.5
Koeleria nitida (cristata) (macrantha)	5	0.5
Oryzopsis hymenoides	17	0.6
Poa sp.	11	0.5
Poa cusickii	17	0.5
Poa fendleriana	5	0.5
Poa interior	11	0.5
Poa nevadensis	5	0.5
Poa pratensis	11	0.7
Poa secunda	29	0.5
Forbs		
Achillea millefolium	17	0.5
Agoseris glauca	11	0.5
Allium sp.	11	0.5
Antennaria microphylla	23	0.5
Angelica roseanna	5	0.5
Arabis sp.	17	0.5
Arenaria congesta	5	0.5
Arenaria (Minuartia) nuttallii	11	0.5
Arabis holboellii	5	0.5
Arabis lemmonii	17	0.3
Artemisia michauxiana	5	0.5
Astragalus miser	11	0.7
Astragalus sp.	11	0.5
Castilleja angustifolia	5	0.5
Castilleja flava	5	0.5
Castilleja miniata	11	0.5
Cirsium sp.	29	0.7
unknown Compositae	11	0.7
Collinsia parviflora	5	0.5
Crepis sp.	5	0.5
unknown Cruciferae	23	0.5
Cymopteris bipinnatus (nivalis)	5	0.5
Delphinium andersonii	11	0.5
Delphinium occidentale	5	0.5
Erigeron compositus	5	0.5
Erysimum inconspicuum	5	0.5
Eriogonum sp	5	0.5
Geranium sp.	5	0.5
Geum triflorum	5	0.5
Hackelia patens	5	0.5
Heuchera sp.	11	0.5
Lappula redowskii (occidentalis var. occid)	5	0.5
Linum perenne (lewisii)	11	0.5
Lomatium triternatum	5	0.5
Lupinus argenteus var. depressus	5	0.5
Lupinus lepidus	5	1.0
Lupinus leucophyllus	5	1.0
Lupinus sp.	5	0.5
Mertensia viridis (lanceolata var. nivalis)	5	0.5
Oenothera caespitosa (cespitosa)	5	0.5
Orobanche fasciculata	5	0.5
Penstemon aridus	17	0.5
Petrophytum caespitosum	11	0.7
Penstemon gracilis	11	0.5
Phlox caespitosa	11	0.5
Physaria didymocarpa var. didymocarpa	29	0.5
Phacelia hastata	35	0.4
Phacelia heterophylla	5	0.5
Phlox hoodii	5	0.5
Phlox longifolia	17	0.5
Phlox sp.	23	0.6
Senecio canus	52	0.5
Senecio integerrimus	5	0.5
Sedum lanceolatum	5	0.5
Senecio sp.	5	0.5
Senecio serra	11	0.5
Senecio streptanthifolius var. brevifolius	17	0.5
Solidago multiradiata	5	0.5
Taraxacum officinale	5	0.5
Tragopogon dubius	17	0.5
unknown forbs w/ > trace cover	5	0.5
unknown forbs (may be more than one sp.)	11	0.5

Soil

The soils of this ecological type are represented by the Fritz series.

Taxonomic class: Loamy-skeletal, carbonatic Calcic Cryoborolls

Typical pedon description

Fritz very gravelly loam; supporting a limber

pine/spike fescue habitat type, woodland; on a 55 percent slope with a south aspect at 9040 feet elevation. (Colors are for dry soil unless otherwise stated.)

A1--0 to 4 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and slightly plastic; common very fine roots; many very fine irregular pores; strongly effervescent; 40 percent pebbles, trace cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

A2--4 to 12 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure parting to weak very fine granular; soft, very friable, nonsticky and slightly plastic; many very fine, common medium and coarse roots; many very fine irregular pores; common hard pendants of carbonates on underside of rock fragments; strongly effervescent; 45 percent pebbles, trace cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bkq1--12 to 24 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure parting to weak very fine granular; soft, very friable, nonsticky and slightly plastic; many very fine, common medium and few coarse roots; many very fine irregular pores; many hard pendants of carbonates and few pendants of silica on underside of rock fragments; violently effervescent; 60 percent pebbles, 5 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bkq2--24 to 32 inches; light gray (10YR 7/2) extremely gravelly sandy loam, brown (10YR 5/3) moist; massive; hard, friable nonsticky and slightly plastic; few fine roots; common very fine tubular pores; many hard pendants of carbonates and common pendants of silica on underside of rock fragments, many fine and medium (less than 15 mm) masses of soft powdery lime in matrix and on rock fragments; violently effervescent; 55 percent pebbles, 20 percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bkq3--32 to 60 inches; light yellowish brown (2.5Y 6/3) extremely gravelly sandy loam; light olive brown (2.5Y 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; many very fine irregular pores; common hard pendants of carbonates and few pendants of silica on underside of rock fragments; violently effervescent; 60 percent pebbles, 20 percent cobbles; moderately alkaline (pH 8.2).

Typical pedon location
Legal description: about 1100 feet south and 200 feet east of the northwest corner section 20, T. 12 N., R. 30 E., ID.
Latitude: 44 degrees, 21 minutes, 45 seconds north.
Longitude: 112 degrees, 54 minutes, 48 seconds west.
Map Unit in which located: 1129

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 8 to 15 inches
Depth to secondary carbonates - 0 to 15 inches
Clay in particle size control section, weighted average - 8 to 18 percent
Rock fragments in particle size control section, weighted average - 40 to 85 percent, dominantly pebbles.
Calcium carbonate equivalent in the mineralogy control section - greater than 40 percent in the less than 20 mm size fraction
Reaction - slightly alkaline or moderately alkaline

A horizons
Hue - 10YR or 2.5Y
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry or moist
Effervescence - slightly effervescent or strongly effervescent

Bk or Bkq horizons
Hue - 10YR or 2.5Y
Value - 5 through 8 dry, 4 through 6 moist
Chroma - 1 through 4 dry or moist
Texture, less than 2 mm fraction - loam or sandy loam
Rock fragments - 60 to 90 percent

PSME/ACGL Kitchell Ecological Type

Incompletely defined at time of this printing.

PSME/ARTRV Fourme Ecological Type

This ecological type is named for the occurrence of Douglas-fir/whortleleaf snowberry habitat type and mountain big sagebrush/Idaho fescue habitat type ecotone communities on Fourme soils.

Environmental Setting
Landforms: alluvial fans
Parent Material: mixed alluvium
Slope range: 0 to 4 percent
Elevation: 6300 to 7000 feet
Average annual precipitation: 20 to 25 inches
Average annual temperature: 34 to 40 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Symphoricarpos* habitat type and *Artemisia tridentata* ssp. *vaseyana/Festuca idahoensis* habitat type ecotone.

Present communities: The mountain big sagebrush/Idaho fescue h.t. is commonly supported.

Vegetation Composition (N=6)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	16	0.5
Pseudotsuga menziesii	50	9.3
Tree d.b.h. < 5 inches		
Pinus contorta	16	2.0
Pseudotsuga menziesii	16	1.5
Shrubs		
Amelanchier alnifolia	33	0.7
Artemisia tridentata ssp. vaseyana	100	20.4
Berberis repens	16	1.0
Chrysothamnus viscidiflorus	16	5.0
Lonicera utahensis	16	0.5
Potentilla fruticosa	16	1.0
Ribes lacustre	16	0.5
Rosa acicularis	16	0.5
Shepherdia canadensis	16	0.5
Symphoricarpos oreophilus	50	11.6
Graminoids		
Agrostis stolonifera	16	0.5
Agropyron trachycaulum	16	5.0
Bromus carinatus	66	3.2
Carex geyeri	16	4.0
Carex raynoldsii	16	5.0
Carex sp.	16	0.5
Calamagrostis rubescens	16	5.0
Carex vallicola	16	2.0
Danthonia unispicata	16	0.5
Elymus glaucus	16	3.0
Festuca idahoensis	66	13.1
Hordeum jubatum	16	0.5
Koeleria nitida (cristata) (macrantha)	33	1.5
Melica spectabilis	33	1.2
Phleum alpinum	16	3.0
Phleum pratense	33	7.0
Poa nervosa	16	0.5
Poa pratensis	83	6.7
Stipa columbiana	50	2.1
Stipa comata	33	3.7
Stipa occidentalis	16	0.5
Forbs		
Achillea millefolium	83	0.9
Agoseris aurantiaca	16	0.5
Agoseris glauca	66	1.1
Agastache urticifolia	16	0.5
Allium acuminatum	16	0.5
Antennaria microphylla	50	1.3
Arenaria congesta	16	0.5
Arnica cordifolia	16	0.5
Artemisia ludoviciana	16	3.0
Aster perelegans	33	1.5
Balsamorhiza sagittata	33	0.7
Campanula rotundifolia	16	0.5
Castilleja rustica	16	0.5
Clematis hirsutissima	16	2.0
Collinsia parviflora	33	0.5
Descurainia sp.	16	0.5
Epilobium minutum	16	0.5
Erythronium grandiflorum	16	0.5
Eriogonum heracleoides	16	0.5
Eriogonum sp	16	0.5
Eriophyllum lanatum	16	0.5
Erigeron peregrinus	50	1.1
Eriogonum umbellatum	50	1.3

Fragaria virginiana	16	2.0
Geum triflorum	16	1.0
Geranium viscosissimum	50	2.0
Hackelia sp.	16	0.5
Hackelia micrantha (jessicae)	16	2.0
Helianthella uniflora	16	0.5
Ligusticum sp.	16	0.5
Lithophragma parviflorum	16	0.5
Linum perenne (lewisii)	16	0.5
Lithospermum ruderale	16	0.5
Lupinus argenteus	33	2.7
Lupinus caudatus	33	2.0
Lupinus sericeus	33	0.7
Microsteris gracilis	33	0.5
Nemophila parviflora	16	1.0
Osmorhiza chilensis	16	0.5
Osmorhiza occidentalis	16	0.5
Oxytropis campestris	33	0.5
Perideridia gairdneri	50	0.5
Phlox longifolia	16	0.5
Potentilla diversifolia	16	2.0
Polygonum douglasii	16	3.0
Polygonum (douglasii var.) engelmannii	16	0.5
Potentilla glandulosa	83	1.7
Potentilla gracilis	50	1.6
Rudbeckia occidentalis	16	0.5
Rumex paucifolius	16	0.5
Senecio sp.	16	0.5
Senecio serra	33	6.2
Smilacina racemosa	16	0.5
Stellaria americana	16	0.5
Taraxacum officinale	83	0.6
Thalictrum occidentale	16	3.0
Trifolium arvense	16	0.5
Tragopogon dubius	33	0.7
unknown forbs w/ > trace cover	33	2.0
Valeriana occidentalis	16	2.0
Viola nuttallii	16	0.5
Wyethia amplexicaulis	16	1.0
Wyethia helianthoides	16	0.5
Zigadenus venenosus	16	0.5

Soil
The soils of this ecological type are represented by the Fourme series.

Taxonomic class: Loamy-skeletal, mixed Argic Cryoborolls

Typical pedon description
Fourme loam supporting a mountain big sagebrush, Idaho fescue community type on a 2 percent slope; about 6350 feet elevation. (Colors are for dry soil unless otherwise noted.)

A--0 to 5 inches; dark brown (10YR 4/3) loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; 10 percent pebbles; moderately acid (pH 6.1); clear smooth boundary.

BA--5 to 11 inches; yellowish brown (10YR 5/4) gravelly loam, dark brown (7.5YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; common very fine and fine roots; common fine irregular pores; few fine tubular pores; 15 percent pebbles; slightly acid (pH 6.1); gradual wavy boundary.

Bt1--11 to 19 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay loam, dark brown (7.5YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, firm, sticky and plastic; few very fine and fine roots; few fine irregular and tubular pores, 50 percent pebbles, 5 percent cobbles; many faint clay films on ped faces; slightly acid (pH 6.1); gradual wavy boundary.

Bt2--19 to 30 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay loam, dark brown (7.5YR 3/3) moist; weak medium granular structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine irregular pores; 35 percent pebbles; common distinct clay films as bridges; slightly acid (pH 6.2); gradual wavy boundary.

C--30 to 62 inches; variegated extremely gravelly coarse sand; single grain; loose, nonsticky and nonplastic; few fine roots; common fine irregular pores; 60 percent pebbles, 5 percent cobbles; neutral (pH 6.6).

Typical pedon location
Legal description: about 100 feet south and 100 feet east of the northwest corner of sec. 18, T.13N., R.43E., ID.
Latitude: 44 degrees, 27 minutes, 25 seconds north.
Longitude: 111 degrees, 26 minutes, 05 seconds west.

Map unit in which located: 1760

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Thickness of mollic epipedon - 10 to 15 inches
Reaction - moderately acid to moderately alkaline
Control section clay content - 20 to 30 percent.
Rock fragments in the particle size control section averages - 35 to 55 percent.

A horizon:
Hue - 7.5YR or 10YR
Value - 3 to 5 dry and moist
Chroma - 2 or 3 dry and moist
Reaction - moderately acid to neutral

BA and Bt horizons:
Hue - 7.5YR, 10YR, or variegated
Value - 3 to 6 dry and moist
Chroma - 3 to 6 dry and moist
Texture - gravelly loam, gravelly sandy loam, very gravelly sandy clay loam, very gravelly clay loam, extremely gravelly clay loam
These horizons consist of stratified alluvium.
Reaction - slightly acid to mildly alkaline

C horizons:
Hue - 7.5YR, 10YR or variegated
Value - 3 to 6 dry and moist
Chroma - 4 to 6 dry and moist
Texture - extremely gravelly sand, extremely gravelly loamy sand, extremely gravelly coarse sand
Reaction - neutral to moderately alkaline

PSME/ARTRV Meegero Ecological Type

This ecological type is named for the occurrence of Douglas-fir/whortleleaf snowberry habitat type and mountain big sagebrush/Idaho fescue habitat type on Meegero soils.

Environmental Setting
Landforms: mountains and foothills
Parent Material: local alluvium or colluvium derived from limestone and loess
Slope range: 20 to 50 percent
Elevation: 6700 to 9600 feet
Average annual precipitation: 16 to 19 inches
Average annual temperature: 35 to 42 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Symphoricarpos oreophilus* habitat type and *Artemisia tridentata* ssp. *vaseyana/Festuca idahoensis* habitat type ecotone.

Present communities: A mosaic of the mountain big sagebrush/Idaho fescue h.t; mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. or communities dominated by Idaho fescue are commonly supported. Widely dispersed seedling through medium sized trees of Douglas-fir occur in some areas. The Douglas-fir/whortleleaf snowberry h.t. is present on some north facing slopes.

Vegetation Composition (N=6)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. < 5 inches		
Pinus flexilis	16	0.5
Pseudotsuga menziesii	16	0.5
Shrubs		
Artemisia frigida	16	0.5
Artemisia nova	16	2.0
Artemisia tridentata ssp. vaseyana	83	15.8
Chrysothamnus viscidiflorus	50	1.6
Symphoricarpos oreophilus	33	2.5
Tetradymia canescens	16	0.5
Graminoids		
Agropyron sp.	16	0.5
Agropyron (Pseudoroegneria) spicatum	50	15.0
Agropyron trachycaulum	16	0.5
Bromus anomalus	16	2.0
Bromus carinatus	16	0.5
Carex geyeri	16	12.0
Carex petasata	16	0.5
Carex sp.	33	0.3
Carex rossii	16	5.0
Danthonia intermedia	33	2.7

Elymus cinereus	16	0.5
Elymus sp.	16	0.5
Festuca idahoensis	83	19.7
Hesperchloa kingii	33	1.5
Koeleria nitida (cristata) (macrantha)	50	0.5
Poa cusickii	16	6.0
Poa sandbergii	33	2.7
Poa secunda	16	0.5
Stipa columbiana	16	0.5
Stipa sp.	16	5.0
Trisetum spicatum	16	0.5
Forbs		
Achillea millefolium	66	0.7
Agoseris glauca	16	0.1
Antennaria microphylla	66	2.1
Antennaria sp.	16	2.0
Arabis sp.	50	0.5
Arenaria congesta	16	0.5
Aster perelegans	16	0.5
Astragalus lentiginosus	16	0.5
Astragalus miser	16	0.1
Astragalus sp.	66	0.6
Balsamorhiza sagittata	33	0.7
Besseya wyomingensis	50	0.3
Castilleja angustifolia	16	0.5
Castilleja sp.	16	0.5
Cirsium scariosum	16	0.5
Clematis hirsutissima	16	1.0
unknown Compositae	16	0.1
Crepis sp.	16	0.5
Crepis intermedia	16	0.5
Delphinium sp.	16	0.5
Dodecatheon pulchellum	33	0.5
Epilobium angustifolium	16	0.5
Eriogonum umbellatum	16	3.0
Eriophyllum lanatum	16	0.5
Erysimum sp.	16	0.5
Frasera sp.	16	0.5
Frasera speciosa	33	0.5
Geum triflorum	16	0.5
Geranium viscosissimum	16	3.0
Hackelia micrantha (jessicae)	16	2.0
Haplopappus (Stenotus) stenophyllus	16	0.5
Heuchera sp.	33	0.5
Helianthella uniflora	16	1.0
Linum perenne (lewisii)	16	0.1
Lithospermum ruderale	16	0.5
Lomatium triternatum	16	0.5
Lupinus argenteus	16	3.0
Lupinus sp.	33	0.7
Mertensia viridis (lanceolata var. nivalis)	33	0.5
Opuntia polyacantha	16	0.5
Oxytropis sericea	16	0.5
Pedicularis sp.	16	0.5
Penstemon gracilis	16	0.5
Phlox hoodii	50	1.1
Phlox longifolia	16	0.5
Phlox sp.	16	1.0
Phlox multiflora	16	0.5
Potentilla gracilis	16	5.0
Solidago multiradiata	16	0.5
Taraxacum officinale	33	0.3
Townsendia montana (alpigena)	16	0.5
Tragopogon dubius	16	0.5
unknown Umbelliferae	16	0.5
Viola nuttallii	16	0.5
Zigadenus venenosus	16	0.5

Soil

The soils of this ecological type are represented by the Meegero series.

Taxonomic class: Loamy-skeletal, carbonatic Calcic Pachic Cryoborolls

Typical pedon description

Meegero loam; supporting a mountain big sagebrush/Idaho fescue h.t., rangeland; on a 32 percent slope with a northeast aspect at 7900 feet elevation. (Colors are for dry soil unless otherwise noted.)

A--0 to 6 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; weak very fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; many hard pendants of carbonates on underside of rock fragments; 10 percent pebbles; slightly alkaline (pH 7.6); clear smooth boundary.

AB--6 to 18 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to weak fine granular; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; many hard pendants of carbonates on underside of rock fragments; violently effervescent; 25 percent pebbles; moderately alkaline (pH 8.0); clear smooth boundary.

2Bkq1--18 to 24 inches; light brownish gray (10YR 6/2) extremely gravelly loam, grayish brown (10YR 5/2) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; common fine and few very fine roots; many fine and medium irregular pores; many hard pendants of carbonates and few pendants of silica on underside of rock fragments; violently effervescent; 70 percent pebbles, 10 percent cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

3Bkq2--24 to 32 inches; light gray (10YR 7/2) extremely cobbly sandy loam, pale brown (10YR 6/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few very fine and fine roots; common fine tubular pores; continuous coats of soft powdery lime on rock fragments, many masses of soft powdery lime in matrix, and few pendants of silica on underside of rock fragments; violently effervescent; 30 percent pebbles, 30 percent cobbles; moderately alkaline (pH 8.2); gradual smooth boundary.

3Bkq3--32 to 60 inches; pale brown (10YR 6/3) extremely cobbly sandy loam, light olive brown (2.5Y 5/3) moist; weak coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common fine tubular pores; continuous coats of soft powdery lime on rock fragments, many masses of soft powdery lime in matrix, and few pedants of silica on underside of rock fragments; violently effervescent; 20 percent pebbles, 50 percent cobbles; moderately alkaline (pH 8.2).

Typical pedon location
Legal description: about 2200 feet east and 1000 feet south of the northwest corner section 2, T. 10 N., R. 31 E., ID.
Latitude: 44 degrees, 13 minutes, 40 seconds north.
Longitude: 112 degrees, 47 minutes, 15 seconds west.
Map Unit in which located: 1133

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 17 to 28 inches
Depth to calcic horizon - 4 to 12 inches
Clay in particle-size control section, weighted average - 12 to 18 percent
Rock fragments in particle-size control section, weighted average - 35 to 80 percent
Calcium carbonate equivalent in mineralogy control section, weighted average - 40 to 55 percent

A horizons
Hue - 10YR or 7.5YR
Value - 3 through 5 dry, 2 or 3 moist
Chroma - 2 or 3

Bw horizon (when present)
Hue - 10YR or 7.5YR
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3
Texture, less than 2 mm fraction - loam or silt loam
Rock fragments - 35 to 60 percent
Effervescence - slightly effervescent through violently effervescent
Reaction - slightly or moderately alkaline

Bk or Bkq horizons
Hue - 2.5Y through 7.5YR
Value - 5 through 8 dry, 4 through 7 moist
Chroma - 2 through 4 dry or moist
Texture, less than 2 mm fraction - loam or sandy loam
Rock fragments - 60 to 90 percent
Reaction - moderately or strongly alkaline

PSME/ARTRV Povey Ecological Type

This ecological type is named for the occurrence of Douglas-fir/whortleleaf snowberry habitat type and mountain big sagebrush/Idaho fescue habitat type on Povey soils.

Environmental Setting
Landforms: foothills and canyons
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 4 to 60 percent
Elevation: 5300 to 9600 feet
Average annual precipitation: 18 to 20 inches
Average annual temperature: 37 to 40 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation

The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Symphoricarpos oreophilus* habitat type and *Artemisia tridentata* ssp. *vaseyana/Festuca idahoensis* habitat type ecotone.

Present communities: A mosaic of the mountain big sagebrush/whortleleaf snowberry/Idaho fescue h.t. and Douglas-fir/whortleleaf snowberry h.t. are commonly supported. Communities dominated by mountain big sagebrush, whortleleaf snowberry or snowbrush ceanothus and bluebunch wheatgrass or California brome are also commonly supported. Seedling through pole sized Douglas-fir are widely dispersed in some areas of the shrub dominated communities.

Vegetation Composition (N=22)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Juniperus sp.	4	0.5
Pinus contorta	4	4.0
Pseudotsuga menziesii	4	0.5
Tree d.b.h. < 5 inches		
Pinus contorta	4	3.0
Populus tremuloides	18	1.6
Pseudotsuga menziesii	13	1.3
	4	5.0
Shrubs		
Amelanchier alnifolia	22	1.9
Arctostaphylos uva-ursi	4	7.0
Artemisia tridentata ssp. vaseyana	86	22.6
Berberis repens	36	3.0
Ceanothus velutinus	22	47.1
Chrysothamnus nauseosus	4	0.5
Chrysothamnus viscidiflorus	27	0.4
Prunus virginiana ssp. melanocarpa	50	4.6
Purshia tridentata	27	0.8
Rosa sp.	18	0.6
Symphoricarpos sp.	4	7.0
Symphoricarpos oreophilus	72	4.4
Tetradymia canescens	4	1.0
Graminoids		
Agropyron dasystachyum	18	0.6
Agropyron intermedium	9	1.5
Agropyron (Pseudoroegneria) spicatum	36	5.6
Agropyron trachycaulum	22	0.5
Agropyron sp.	9	0.5
Bromus carinatus	50	1.8
Bromus inermis	4	2.0
Bromus sp.	18	1.2
Calamagrostis rubescens	13	1.3
Carex geyeri	4	5.0
Carex petasata	4	0.5
Carex sp.	45	0.9
Danthonia intermedia	9	0.7
Elymus cinereus	9	3.0
Elymus glaucus	18	1.7
Festuca idahoensis	72	6.9
Koeleria nitida (cristata) (macrantha)	18	1.6
Melica bulbosa	13	0.6
Melica sp.	9	0.5
Melica spectabilis	31	0.9
Phleum pratense	4	1.0
Poa arida	4	0.5
Poa nevadensis	4	0.5
Poa pratensis	9	0.7
Poa sandbergii	4	0.5
Poa secunda	4	0.5
Poa sp.	31	2.0
Stipa columbiana	27	2.5
Stipa comata	27	3.5
Stipa occidentalis	4	1.0
Stipa sp.	31	2.7
Unknown grasses w/ >trace cover	4	0.5
Forbs		
Achillea millefolium	72	0.6
Agoseris glauca	22	0.5
Agastache urticifolia	40	2.1
Allium acuminatum	18	0.5
Antennaria microphylla	50	0.6
Antennaria racemosa	4	0.5
Antennaria sp.	9	0.5
Arabis holboellii	22	0.5
Arabis sp.	18	0.4
Arenaria congesta	27	1.2
Aster conspicuus	4	0.5
Aster occidentalis	4	0.5
Aster sp.	13	0.5
Astragalus miser	13	0.3
Balsamorhiza macrophylla	13	0.6
Balsamorhiza sagittata	36	0.8
unknown Boraginaceae	9	0.5
Calochortus sp.	4	0.5
Campanula rotundifolia	4	1.0
Castilleja cusickii	9	0.5
Castilleja sp.	18	0.4

Clematis hirsutissima	4	0.5
Collinsia parviflora	4	0.5
Comandra umbellata	13	0.5
unknown Compositae	13	0.5
Crepis modocensis	9	0.5
Crepis sp.	18	0.5
unknown Cruciferae	4	0.1
Delphinium nuttallianum	4	0.5
Erigeron compositus	4	0.5
Erigeron glabellus	4	0.5
Erigeron sp.	31	0.7
Eriogonum heracleoides	4	0.5
Eriogonum sp	40	1.6
Eriogonum umbellatum	36	2.2
Eriophyllum lanatum	4	0.5
unknown forbs (may be more than one sp.)	4	2.0
Fragaria vesca	4	0.5
Fritillaria atropurpurea	4	0.5
Geum triflorum	13	0.8
Geranium viscosissimum	22	1.5
Hackelia micrantha (jessicae)	22	0.9
Hackelia sp.	4	0.5
Helianthella uniflora	45	1.1
Heuchera sp.	4	0.5
Hieracium sp.	13	0.8
Linum perenne (lewisii)	4	0.5
Lithophragma parviflorum	9	1.5
Lithospermum ruderale	9	0.5
Lomatium sp.	4	0.5
Lupinus argenteus	9	1.0
Lupinus caudatus	4	0.5
Lupinus lepidus	9	1.7
Lupinus sp.	40	1.3
Lupinus sericeus	4	0.5
Microsteris gracilis	31	1.3
Microseris troximoides	4	0.5
Nemophila parviflora	4	1.0
Osmorhiza chilensis	4	0.5
Osmorhiza sp.	4	0.5
Oxytropis campestris	4	0.5
Penstemon sp.	4	0.5
Perideridia gairdneri	13	0.5
Phacelia hastata	4	0.1
Phacelia heterophylla	4	0.5
Phlox longifolia	27	0.3
Polygonum douglasii	40	1.1
Polygonum sp.	18	0.6
Potentilla glandulosa	45	0.5
Potentilla sp.	4	1.0
Rorippa sinuata	4	0.5
Rudbeckia occidentalis	4	0.5
Rumex paucifolius	4	0.5
Senecio integerrimus	4	0.5
Senecio serra	4	0.5
Senecio sp.	4	0.5
Smilacina racemosa	18	0.8
Smilacina stellata	4	0.5
Solidago canadensis	4	0.5
Solidago missouriensis	4	1.0
Taraxacum officinale	22	0.5
Thlaspi sp.	4	0.5
Thalictrum occidentale	9	0.7
Tragopogon dubius	27	0.5
Valeriana occidentalis	13	0.6
Wyethia sp.	9	1.7
Zigadenus venenosus	9	0.5

Soil

The soils of this ecological type are represented by the Povey series.

Taxonomic class: Loamy-skeletal, mixed Pachic Cryoborolls

Typical pedon description

Povey gravelly loam, supporting a community of native and nonnative grasses, rangeland; on a 4 percent slope; about 6440 feet elevation. (Colors are for dry soil unless otherwise stated.)

A1–0 to 3 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine, few fine and medium roots; many very fine irregular pores; 15 percent pebbles; slightly acid (pH 6.4); abrupt smooth boundary.

A2–3 to 27 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine, few coarse roots; common very fine, few fine and medium tubular pores; 25 percent pebbles; slightly acid (pH 6.1); clear wavy boundary.

Bw–27 to 39 inches; dark grayish brown (10YR 4/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; few very fine through medium roots; common very fine, few fine and medium tubular pores; 30 percent pebbles and 20 percent stones; slightly acid (pH 6.2); clear wavy boundary.

C--39 to 60 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; slightly hard, very firm, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; 50 percent pebbles, 10 percent cobbles and 15 percent stones; slightly acid (pH 6.4).

Typical pedon location
Legal description: approximately 14 miles north west of Ashton; about 300 feet east and 350 feet north of the southwest corner of section 27, T. 11 N., R 41 E., ID.
Latitude: 44 degrees North, 14 minutes, 48 seconds
Longitude: 111 degrees West, 36 minutes, 53 seconds
Map unit in which located: 1250

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 20 to 44 inches.
Reaction - slightly acid or neutral
Particle size control section clay content - averages 10 to 18 percent.

A horizons:
Value - 3 to 5 dry, 2 or 3 moist
Chroma - 1 to 3 dry and moist

Bw horizons:
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 1 to 3 dry and moist
Texture - very gravelly sandy loam, very gravelly loam or extremely gravelly loam

C horizons:
Value - 4 or 6 dry, 3 or 4 moist
Chroma - 2 to 4 dry and moist
Texture - very gravelly sandy loam, extremely gravelly loam or extremely gravelly sandy loam

PSME/ARTRV Skyway Ecological Type

This ecological type is named for the occurrence of Douglas-fir/whortleleaf snowberry habitat type and mountain big sagebrush/Idaho fescue habitat type on Skyway soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: foothills and mountains
Parent Material: local alluvium or colluvium derived from eolian materials and rhyolite
Slope range: 4 to 60 percent
Elevation: 5500 to 6300 feet
Average annual precipitation: 18 to 22 inches
Average annual temperature: 37 to 40 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Symphoricarpos oreophilus* habitat type and *Artemisia tridentata* ssp. *vaseyana/Festuca idahoensis* habitat type ecotone.

Present communities: A mosaic of the Douglas-fir/whortleleaf snowberry h.t. and communities dominated by bigtooth maple, mountain big sagebrush or whortleleaf snowberry and bluebunch wheatgrass, California brome, elk sedge or weedlike forbs are commonly supported.

Vegetation Composition (N=2)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Populus tremuloides	50	0.5
Pseudotsuga menziesii	50	12.0
Tree d.b.h. < 5 inches		
Populus tremuloides	50	8.0
Pseudotsuga menziesii	100	2.0
Shrubs		
Acer (saccharum) grandidentatum	50	25.0
Artemisia tridentata ssp. vaseyana	50	1.0
Chrysothamnus nauseosus	50	0.5
Prunus virginiana ssp. melanocarpa	100	1.6
Purshia tridentata	50	1.0
Symphoricarpos oreophilus	100	10.5
Graminoids		

Agropyron (Pseudoroegneria) spicatum	50	2.0
Agropyron trachycaulum	100	0.7
Bromus carinatus	100	0.7
Elymus glaucus	50	0.5
Melica bulbosa	50	0.5
Melica spectabilis	50	0.5
Stipa occidentalis	50	0.5
Forbs		
Achillea millefolium	50	0.5
Agastache urticifolia	50	2.0
Antennaria luzuloides	50	8.0
Arabis sp.	50	0.5
Aster foliaceus canbyi	50	2.0
Aster integrifolius	100	0.7
Balsamorhiza sagittata	50	2.0
Campanula rotundifolia	50	0.5
Epilobium minutum	100	1.2
Eriogonum heracleoides	50	3.0
Erigeron speciosus	100	1.0
Gayophytum diffusum	50	10.0
Geranium viscosissimum	50	5.0
Hackelia micrantha (jessicae)	50	0.5
Hieracium cynoglossoides	50	1.0
Lomatium ambiguum	50	1.0
Lomatium sp.	50	0.5
Lupinus argenteus	50	1.0
Lupinus sericeus	50	0.5
Paeonia brownii	100	5.2
Perideridia gairdneri	50	0.5
Polygonum douglasii	100	6.0
Potentilla glandulosa	50	0.5
Potentilla gracilis	50	1.0
Senecio serra	50	5.0
Silene oregana	50	0.5
Smilacina racemosa	100	1.7
Solidago canadensis	50	8.0
Viguiera (Heliomeris) multiflora	100	3.5

Soil
The soils of this ecological type are represented by the Skyway series.

Taxonomic class: Coarse-loamy, mixed Pachic Cryoborolls

Typical pedon description
Skyway sandy loam, supporting a Douglas fir/whortleleaf snowberry habitat type, on a 5 percent south facing slope; about 6200 feet elevation. (Colors are for dry soil unless otherwise noted.)

A1--0 to 8 inches; brown (10YR 4/3) sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and few fine through coarse roots; many very fine irregular pores; 10 percent 2 to 5 mm size pebbles; neutral (pH 6.8); clear smooth boundary.

A2--8 to 18 inches; brown (7.5YR 4/2) sandy loam, dark brown (7.5YR 3/2) moist; strong medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine through coarse roots; many very fine and common fine tubular pores; 10 percent 2 to 5 mm size pebbles; neutral (pH 6.6); clear smooth boundary.

A3--18 to 27 inches; brown (7.5YR 5/3) sandy loam, dark brown (7.5YR 3/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine through coarse roots; common very fine tubular pores; 10 percent 2 to 5 mm size pebbles; slightly acid (pH 6.4); clear wavy boundary.

Bw2--27 to 32 inches; light brown (7.5YR 6/3) sandy loam, brown (7.5YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine through medium roots; common very fine and tubular pores; 10 percent pebbles; slightly acid (pH 6.4); abrupt wavy boundary.

R--32 inches; hard rhyolite bedrock.

Typical pedon location
Legal description: about 900 feet north and 2100 feet west of the southeast corner of section 26, T. 10 N., R. 42 E., ID.
Latitude: 44 degrees, 9 minutes, 40 seconds north.
Longitude: 111 degrees, 27 minutes, 45 seconds west.
Map unit in which located: 1430

Range in characteristics
Profile:
Depth class - moderately deep
Drainage class - well drained
Mollic epipedon thickness - 16 to 40 inches
Depth to lithic contact - 20 to 40 inches
Percent clay in textural control section - 10 to 16

percent
Coarse fragments in particle size control section - 0 to 15 percent
Reaction - slightly acid to neutral (pH 6.1 to 7.3)

A horizons:
Hue - 10YR or 7.5YR
Value - 3 to 5 dry; 2 or 3 moist

Bw horizons:
Hue - 10YR or 7.5YR
Value - 5 or 6 dry, 3 or 4 moist
Chroma - 2 to 4 dry and moist

Other:
phases recognized - moist

PSME/CARU, CARU Cherpi, cindery substratum Ecological Type

Incompletely defined at time of this printing.

PSME/CARU,CARU Ezbin Ecological Type

This ecological type is named for the occurrence of Douglas-fir/pinegrass habitat type, pinegrass phase on Ezbin soils.

Environmental Setting
Landforms: foothills and mountains
Parent Material: local alluvium or colluvium derived from loess and mixed sources
Slope range: 20 to 40 percent
Elevation: 6500 to 8500 feet
Average annual precipitation: 20 to 24 inches
Average annual temperature: 36 to 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Calamagrostis rubescens* habitat type, *Calamagrostis rubescens* phase.

Present communities: The Douglas-fir/pinegrass h.t., pinegrass phase is commonly supported.

Vegetation Composition (N=12)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Populus tremuloides	25	14.0
Pseudotsuga menziesii	91	25.7
Tree d.b.h. < 5 inches		
Pinus contorta	8	1.0
Pinus flexilis	16	1.0
Populus tremuloides	33	10.6
Pseudotsuga menziesii	58	2.2
Shrubs		
Amelanchier alnifolia	25	0.5
Berberis repens	75	1.2
Prunus virginiana ssp. melanocarpa	25	0.8
Ribes sp.	8	0.5
Rosa acicularis	25	1.1
Rosa sp.	16	2.7
Sorbus scopulina	8	0.5
Symphoricarpos albus	8	0.5
Symphoricarpos oreophilus	91	7.1
Graminoids		
Agropyron sp.	8	0.5
Agropyron (Pseudoroegneria) spicatum	25	0.5
Agropyron trachycaulum	8	2.0
Bromus carinatus	41	0.9
Bromus sp.	33	0.5
Calamagrostis rubescens	100	16.4
Carex geyeri	33	12.1
Dactylis glomerata	25	1.3
Elymus glaucus	25	0.5
Festuca idahoensis	8	0.5
Melica spectabilis	16	1.2
Phleum pratense	58	1.2
Poa sp.	50	3.1
Poa nervosa	8	0.5
Poa nevadensis	8	0.5
Poa pratensis	33	2.2
Trisetum spicatum	16	0.5
Forbs		
Achillea millefolium	83	0.5
Agoseris glauca	16	0.5
Agoseris sp.	8	0.5
Agastache urticifolia	25	0.5
Antennaria microphylla	16	0.5
Apocynum androsaemifolium	8	0.5

Aquilegia flavescens	16	0.5
Aquilegia sp.	8	0.5
Arabis sp.	8	0.5
Arnica cordifolia	58	0.5
Aster conspicuus	16	1.2
Aster engelmannii	8	3.0
Aster foliaceus canbyi	8	0.5
Astragalus miser	41	1.0
Aster occidentalis	58	0.5
Aster sp.	16	0.5
Astragalus sp.	16	0.7
Balsamorhiza macrophylla	8	0.5
Castilleja miniata	8	0.5
unknown Compositae	8	0.5
Collinsia parviflora	8	0.5
Corallorhiza sp.	8	0.5
Crepis occidentalis	8	1.0
Delphinium bicolor	8	0.5
Delphinium occidentale	8	0.5
Epilobium angustifolium	25	0.5
Epilobium minutum	16	0.5
Equisetum arvense	8	0.5
Equisetum sp.	8	0.5
Eriogonum sp	8	0.5
Erigeron peregrinus	8	0.5
Fragaria sp.	8	1.0
Fritillaria atropurpurea	16	0.5
Fragaria vesca	58	1.2
Fragaria virginiana	16	0.5
Galium boreale	33	0.5
Galium triflorum	8	1.0
Geranium viscosissimum	100	0.6
Habenaria sp.	16	0.5
Hackelia sp.	8	0.5
Hackelia micrantha (jessicae)	41	0.5
Heuchera sp.	8	0.5
Helianthella uniflora	25	1.6
Hieracium cynoglossoides	41	0.5
Hieracium sp.	16	0.5
Hydrophyllum capitatum	8	0.5
Ligusticum filicinum	16	0.5
Ligusticum sp.	8	0.5
Lupinus argenteus	75	0.7
Microsteris gracilis	41	0.5
Nemophila parviflora	8	1.0
Osmorhiza chilensis	58	0.5
Osmorhiza occidentalis	8	2.0
Oxytropis campestris	16	2.0
Perideridia gairdneri	66	0.6
Perideridia sp.	8	0.5
Phacelia heterophylla	8	0.5
Polygonum douglasii	16	1.7
Potentilla glandulosa	50	0.7
Potentilla gracilis	50	0.6
Rudbeckia occidentalis	16	0.5
Senecio serra	16	0.5
Smilacina racemosa	16	0.5
Smilacina stellata	8	0.5
Taraxacum officinale	83	0.7
Thalictrum fendleri	16	7.7
Thalictrum occidentale	66	2.1
Tragopogon dubius	25	0.5
Valeriana occidentalis	33	0.8
Viola nuttallii	8	0.5
Viola sp.	8	0.5

Soil

The soils of this ecological type are represented by the Ezbin series.

Taxonomic class: Loamy-skeletal, mixed Argic Cryoborolls

Typical pedon description

Ezbin loam supporting a Douglas-fir/pinegrass habitat type, pinegrass phase; on a 30 percent slope; about 6850 feet elevation. (Colors are for dry soil unless otherwise noted.)

Oi—1 to 0 inches; Forest litter; slightly decomposed needles, twigs and cones; abrupt smooth boundary.

A1—0 to 4 inches; brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure parting to moderate medium granular; soft, very friable, nonsticky and slightly plastic; many very fine, few fine through coarse roots; many very fine irregular pores; 10 percent pebbles, trace cobbles and stones; neutral (pH 6.6); abrupt smooth boundary.

A2—4 to 12 inches; brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky parting to moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine, few fine through coarse roots; many very fine irregular pores; 30 percent pebbles, trace cobbles and stones; slightly acid (pH 6.4); abrupt smooth boundary.

Bt1—15 to 25 inches; yellowish brown (10YR 5/4) very gravelly clay loam, brown (10YR 4/3) moist; moderate very coarse subangular blocky parting to strong medium subangular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; few very fine and few medium tubular pores; many faint dark brown (10YR 4/3) moist, clay films on ped faces, lining pores and on rock fragments; 35 percent pebbles, 5 percent

cobbles and trace stones; slightly acid (pH 6.4); clear smooth boundary.

Bt2--25 to 36 inches; yellowish brown (10YR 5/4) very gravelly loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; hard, firm, sticky and plastic; few very and fine roots; few very fine through medium tubular pores; many faint dark brown (10YR 4/3) moist, clay films on ped faces, lining pores and on rock fragments; 35 percent pebbles, 5 percent cobbles and trace stones; slightly acid (pH 6.4); clear smooth boundary.

Bt3--36 to 47 inches; light yellowish brown (2.5Y 6/4) very gravelly loam, light olive brown (2.5Y 6/4) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and plastic; few very fine roots; common very fine and fine tubular pores; few faint dark brown (10YR 4/3) moist, clay films on ped faces, lining pores and on rock fragments; 35 percent pebbles, 5 percent cobbles and trace stones; slightly acid (pH 6.4); gradual smooth boundary.

C--47 to 65 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine, few fine tubular pores; 35 percent pebbles, 5 percent cobbles, 5 percent stones; neutral (pH 6.8).

Typical pedon location
Legal description: about 2000 feet north and 2100 feet west of the southeast corner of sec. 35, T.13N., R.37E., ID.
Latitude: 44 degrees, 24 minutes, 29 seconds north.
Longitude: 112 degrees, 5 minutes, 17 seconds west.
Map unit in which located: 1149

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 16 inches.
Depth to argillic horizon - 10 to 20 inches.
Clay content in particle size control section - averages 18 to 30 percent.
Rock fragments in the particle size control section - averages 35 to 50 percent.
Reaction - neutral to moderately acid.

A horizons:
Value - 4 or 5 dry, 2 to 3 moist
Chroma - 2 or 3 dry and moist

Bt horizons:
Value - 5 or 6 dry and 4 or 5 moist
Chroma - 3 or 4 dry and moist
Texture less than 2mm - loam, clay loam or sandy clay loam
Rock fragments - 20 to 50 percent

C horizons:
Hue - 10YR or 2.5Y
Value - 5 to 6 dry and 4 to 5 moist
Chroma - 3 or 4 dry and moist
Texture less than 2mm - loam, sandy loam, clay loam, or sandy clay loam
Rock fragments - 30 to 50 percent

PSME/CARU,CARU Hooter Ecological Type

This ecological type is named for the occurrence of Douglas-fir/pinegrass habitat type, pinegrass phase on Hooter soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: shield volcanos
Parent Material: local alluvium derived from loess, basalt and andesite
Slope range: 2 to 15 percent
Elevation: 6000 to 7000 feet
Average annual precipitation: 20 to 28 inches
Average annual temperature: 37 to 40 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Calamagrostis rubescens* habitat type, *Calamagrostis rubescens* phase.

Present communities:
The Douglas-fir/pinegrass h.t., pinegrass phase; lodgepole pine/pinegrass c.t. and

Douglas-fir/whortleleaf snowberry community are supported in lightly or nondisturbed areas. Communities dominated by elk sedge, pinegrass or mesic forbs are supported in recent clearcut areas.

Vegetation Composition (N=2)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	50	2.0
Pseudotsuga menziesii	50	18.0
Tree d.b.h. < 5 inches		
Pinus contorta	50	1.5
Populus tremuloides	50	5.0
Pseudotsuga menziesii	50	0.5
Shrubs		
Berberis repens	50	2.0
Prunus virginiana ssp. melanocarpa	50	1.0
Symphoricarpos oreophilus	50	2.0
Graminoids		
Calamagrostis rubescens	100	15.0
Carex geyeri	50	15.0
Carex sp.	50	1.0
Poa sp.	50	0.5
Poa pratensis	50	0.5
Forbs		
Achillea millefolium	50	0.5
Antennaria luzuloides	50	0.5
Arnica cordifolia	50	0.5
Aster occidentalis	50	0.5
Castilleja miniata	50	0.5
Epilobium angustifolium	100	0.7
Geranium viscosissimum	100	1.7
Hackelia micrantha (jessicae)	50	0.5
Hieracium albiflorum	50	0.5
Hieracium cynoglossoides	50	0.5
Lupinus argenteus	50	0.5
Machaeranthera canescens	50	1.0
Perideridia gairdneri	100	0.5
Potentilla glandulosa	50	0.5
Solidago sp.	50	0.5
Thalictrum occidentale	50	1.0

Soil

The soils of this ecological type are represented by the Hooter series.

Taxonomic class: Fine-loamy, mixed Cryic Paleborolls

Typical pedon description

Hooter silt loam supporting a Douglas fir/pinegrass habitat type, pinegrass phase; on a 7 percent slope with a south aspect at 6,280 feet elevation. (Colors are for dry soil unless otherwise noted.)

Oi–3 to 2 inches; forest litter of slightly decomposed needles, twigs and cones; abrupt smooth boundary.

Oe–2 to 0 inches; forest litter of partially decomposed needles, twigs and cones; abrupt smooth boundary.

A1–0 to 1 inches; grayish brown (10YR 5/2) silt loam, very dark gray (10YR 3/1) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few fine irregular pores; neutral (pH 6.6); abrupt smooth boundary.

A2–1 to 10 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and medium roots; few very fine and fine irregular pores; neutral (pH 6.6); clear wavy boundary.

2E/B–10 to 24 inches; 60 percent pale brown (10YR 6/3) E material, brown (10YR 4/3) moist and 40 percent yellowish brown (10YR 5/4) B material, dark yellowish brown (10YR 3/4) moist in an irregular matrix that mix to a silt loam; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and medium roots, common very fine and fine tubular pores; few faint clay films on faces of peds, bridging sand grains and lining pores of B material; 5 percent cobbles and 5 percent stones; neutral (ph 6.6); clear wavy boundary.

2B/E–24 to 30 inches; yellowish brown (10YR 5/4) stony silt loam, dark yellowish brown (10YR 3/4) moist (80 percent of horizon, B material) and very pale brown (10YR 7/3), brown (10YR 5/3) moist (20 percent of horizon, E material); moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; common very fine and fine tubular pores; common faint clay films on faces of peds and lining pores of B

material; 5 percent pebbles, 10 percent cobbles, 15 percent stones; neutral (pH 6.6); clear wavy boundary.

2Bt--30 to 35 inches; yellowish brown (10YR 5/4) stony clay loam, dark yellowish brown (10YR 3/4) moist; weak coarse subangular blocky structure; hard, friable, slightly sticky and plastic; few fine and medium roots; common very fine and fine tubular pores; common distinct clay films on ped faces and lining pores; 5 percent pebbles, 10 percent cobbles, 15 percent stones; slightly acid (pH 6.4); abrupt wavy boundary.

R--35 inches; hard basalt bedrock

Typical pedon location
Legal description: about 800 feet north and 1000 feet west of the southeast corner of sec. 22, T.11N., R.43E., ID.
Latitude: 44 degrees, 15 minutes, 35 seconds north.
Longitude: 111 degrees, 21 minutes, 29 seconds west.
Map unit in which located: 1020

Range in characteristics
Profile:
Depth class - moderately deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 19
Depth to bedrock - 20 to 40 inches.
Depth to argillic horizon - 24 to 35 inches.
Control section clay content - averages 22 to 35 percent.
Rock fragments in the particle size control section averages - 10 to 35 percent.
Reaction - moderately acid to neutral

O horizons:
Thickness - 0 to 4 inches

A horizons:
Hue - 7.5YR or 10YR
Value - 3, to 5 dry and 2 or 3 moist
Chroma - 2 or 3 dry or moist

E/B and B/E horizons:
Hue - 7.5YR or 10YR
Value -
E material - 6 or 7 dry, 4 or 5 moist
B material - 5 or 6 dry, 3 or 4 moist
Chroma -
E material - 2 or 3 dry or moist
B material - 2 to 4 dry or moist
Texture less than 2 mm - averages silt loam, sandy loam or loam
Rock fragments - 0 to 30 percent
Volume of E material - 15 to 85 percent
Volume of B material - 15 to 85 percent

Bt horizons:
Hue - 7.5YR or 10YR
Value - 3 to 6 dry and 3 or 4 moist
Chroma - 2 to 4 dry and moist
Rock fragments - 15 to 35 percent

PSME/CARU,CARU Nopla Ecological Type

This ecological type is named for the occurrence of Douglas-fir/pinegrass habitat type, pinegrass phase on Nopla soils.

Environmental Setting
Landforms: shield volcanos
Parent Material: local alluvium derived from loess and mixed volcanic rocks
Slope range: 2 to 15 percent
Elevation: 6000 to 7000 feet
Average annual precipitation: 20 to 30 inches
Average annual temperature: 35 to 40 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Calamagrostis rubescens* habitat type, *Calamagrostis rubescens* phase.

Present communities: The Douglas-fir/pinegrass h.t., pinegrass phase; lodgepole pine/pinegrass c.t., quaking aspen/whortleleaf snowberry/pinegrass c.t. or Douglas-fir/whortleleaf snowberry community are supported in lightly or nondisturbed areas. Communities dominated by elk sedge, pinegrass or mesic forbs are supported in recent clearcut areas.

Vegetation Composition (N=14)

Scientific name	Constancy	Mean

	%	%Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	7	3.0
Pinus contorta	78	6.0
Populus tremuloides	14	1.5
Pseudotsuga menziesii	71	12.1
Tree d.b.h. < 5 inches		
Abies lasiocarpa	7	17.0
Pinus contorta	71	5.2
Populus tremuloides	21	4.6
Pseudotsuga menziesii	78	4.2
Shrubs		
Amelanchier alnifolia	50	0.7
Berberis repens	14	0.7
Lonicera utahensis	14	0.5
Ribes montigenum	14	0.5
Rosa acicularis	7	0.5
Rosa sp.	7	0.5
Salix scouleriana	7	0.5
Sorbus scopulina	14	0.5
Spiraea betulifolia	14	0.7
Symphoricarpos albus	35	3.0
Symphoricarpos oreophilus	21	6.6
Vaccinium globulare	7	0.5
Vaccinium scoparium	7	0.5
Graminoids		
Agropyron sp.	14	0.7
Agropyron trachycaulum	7	0.5
Bromus carinatus	35	2.4
Bromus sp.	28	1.3
Agropyron sp.	14	0.7
Agropyron sp.	14	0.7
Calamagrostis rubescens	92	21.5
Carex geyeri	71	13.2
Carex rossii	28	1.0
Carex sp.	7	1.0
Dactylis glomerata	7	1.0
Danthonia intermedia	35	1.0
Elymus glaucus	35	4.7
Melica bulbosa	14	0.5
Melica spectabilis	7	1.0
Melica subulata	7	0.5
Phleum pratense	21	1.5
Poa nervosa	14	0.5
Poa nervosa var. wheeleri	7	0.5
Poa pratensis	28	2.1
Poa sp.	42	4.6
Unknown grasses w/ >trace cover	14	0.7
Forbs		
Achillea millefolium	64	0.8
Agastache urticifolia	21	1.5
Agoseris aurantiaca	7	0.5
Aquilegia flavescens	7	1.0
Arabis sp.	7	0.5
Arnica cordifolia	35	1.2
Arnica latifolia	7	0.5
Arnica sp.	7	0.5
Aster engelmannii	7	2.0
Aster integrifolius	7	2.0
Astragalus sp.	7	0.5
Calochortus eurycarpus	7	0.5
Castilleja miniata	7	0.5
Cirsium arvense	7	3.0
Cirsium sp.	7	2.0
Claytonia lanceolata	7	0.5
unknown Compositae	7	1.0
Collinsia parviflora	7	0.5
Crepis sp.	7	0.5
Delphinium nuttallianum	7	0.5
Epilobium angustifolium	71	6.9
Epilobium sp.	7	0.5
Erigeron sp.	14	1.0
Erythronium grandiflorum	7	5.0
Fragaria sp.	35	1.4
Fragaria vesca	7	2.0
Fragaria virginiana	14	0.7
Frasera sp.	7	0.5
Frasera speciosa	14	0.5
Fritillaria atropurpurea	7	0.5
Fritillaria pudica	7	0.5
Galium sp.	7	0.5
Galium triflorum	7	0.5
Geranium sp.	14	0.5
Geranium richardsonii	7	1.0
Geranium viscosissimum	85	3.5
Hackelia sp.	7	0.5
Hieracium sp.	21	0.5
Hydrophyllum capitatum	7	0.5
Lithophragma parviflorum	7	0.5
Lupinus argenteus	85	2.6
Microsteris gracilis	7	0.5
Nemophila parviflora	14	1.7
Osmorhiza chilensis	35	0.9
Osmorhiza occidentalis	7	0.5
Osmorhiza sp.	7	0.5
Pedicularis bracteosa	7	1.0
Perideridia gairdneri	35	0.7
Perideridia sp.	7	0.5
Phacelia sericiea	7	2.0
Polygonum douglasii	7	0.5
Potentilla glandulosa	28	1.1
Potentilla sp.	7	0.5
Pterospora andromedea	14	0.5
Ranunculus uncinatus	7	0.5
Rorippa sp.	7	0.5
Rudbeckia occidentalis	7	3.0
Rumex paucifolius	7	0.5

Senecio sp.	7	0.5
Senecio serra	7	0.5
Smilacina sp.	7	1.0
Smilacina racemosa	14	0.5
Taraxacum officinale	28	0.6
Thalictrum fendleri	7	0.5
Thalictrum occidentale	50	3.0
Tragopogon dubius	7	0.5
Trifolium sp.	7	0.5
Valeriana occidentalis	21	1.1
Viola nuttallii	7	0.5
Wyethia sp.	7	0.5
unknown forbs w/ > trace cover	28	4.0
unknown forbs (may be more than one sp.)	7	2.0

Soil

The soils of this ecological type are represented by the Nopla series.

Taxonomic class: Fine-loamy, mixed Cryic Paleborolls

Typical pedon description

Nopla silt loam, supporting a Douglas fir/pinegrass habitat type, pinegrass phase, woodland; on a concave slope of 8 percent with a south aspect at 6,280 feet elevation. (Colors are for dry soil unless otherwise noted.)

0–2 to 0 inches, forest litter of needles, twigs and leaves; abrupt smooth boundary.

A1–0 to 4 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky and weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine, common fine and medium, and few coarse roots; many very fine irregular and few very fine tubular pores; 5 percent pebbles, trace cobbles and stones; slightly acid (pH 6.4); clear smooth boundary.

A2–4 to 14 inches; brown (10YR 5/3) silt loam, dark grayish brown (10YR 3/3) moist; moderate coarse subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine, few medium and coarse roots; many very fine tubular pores; 5 percent pebbles, trace cobbles and stones; slightly acid (pH 6.5); clear wavy boundary.

E–14 to 24 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate very coarse subangular blocky structure; hard, very friable, nonsticky and slightly plastic; common very fine and fine, few medium and coarse roots; many very fine, few fine and medium tubular pores; 5 percent pebbles, trace cobbles and stones; slightly acid (pH 6.1); clear wavy boundary.

Bt/E–24 to 39 inches; 60 percent yellowish brown (10YR 5/4) B material, dark yellowish brown (10YR 4/4) moist and 40 percent pale brown (10YR 6/3) E material, brown (10YR 5/3) moist in a medium (5 to 15 mm) irregular matrix that mix to a gravelly silt loam; moderate coarse subangular blocky structure parting to moderate fine subangular blocky (B portion) and weak fine subangular blocky (E portion); hard, friable, slightly sticky and slightly plastic; common very fine, few fine and medium roots; many very fine and common fine tubular pores; common distinct clay films on rock fragments, ped faces and lining pores of B material; few fine to medium (less than 15 mm) distinct lamellae; 10 percent pebbles, 5 percent cobbles, trace stones; slightly acid (pH 6.3); gradual wavy boundary.

2Bt1–39 to 54 inches; brown (10YR 5/3) very cobbly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to weak fine subangular blocky; hard, friable, slightly sticky and plastic; few very fine and fine roots; many very fine and common fine tubular pores; many distinct clay films on rock fragments and few distinct clay films on ped faces and lining pores; many distinct uncoated silt grains on ped faces, faint moist; 25 percent pebbles, 30 percent cobbles, trace stones; slightly acid (pH 6.2); clear smooth boundary.

3Bt2–54 to 68 inches, brown (7.5YR 5/2) silt loam, brown (7.5YR 4/2) moist; strong medium subangular blocky structure parting to moderate very fine angular blocky; hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common fine and few medium tubular pores; few faint clay films on rock fragments, ped faces and lining pores; many distinct uncoated silt grains on ped faces, faint moist; common medium to coarse (5 to greater than 15 mm) faint lamellae; 5 percent pebbles, trace cobbles; slightly acid (pH 6.3); clear smooth boundary.

3Bt3–68 to 75 inches, light brown (7.5YR 6/3)

silt loam, brown (7.5YR 4/3) moist; strong coarse subangular blocky structure parting to moderate fine subangular blocky; hard, friable, slightly sticky and plastic; common fine and few medium tubular pores; many distinct clay films on rock fragments, on ped faces and lining pores, faint moist; 5 percent pebbles, trace cobbles; slightly acid (pH 6.3).

Typical pedon location
Legal description: about 2600 feet east and 1350 feet south of the northwest corner of sec. 24, T.11 N., R.41 E., ID.
Latitude: 44 degrees, 33 minutes, 58 seconds north.
Longitude: 111 degrees, 16 minutes, 15 seconds west.
Map unit in which located: 1228

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 20 inches
Depth to argillic horizon - 24 to 40 inches
Depth to lithologic discontinuity - 28 to 60 inches
Clay in particle size control section, weighted average - 18 to 27 percent
Rock fragments in the particle size control section, weighted average - 5 to 35 percent
Reaction - moderately acid to neutral

A horizons
Hue - 7.5YR or 10YR
Value - 3 to 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry or moist

E horizons
Hue - 7.5YR or 10YR
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 3 or 4 or moist
Texture, less than 2 mm fraction - silt loam or loam
Rock fragments - 0 to 20 percent, dominantly pebbles
Base saturation - 35 to 80 percent

B/E horizon
Hue - 7.5YR or 10YR
Value -
E material - 6 or 7 dry, 4 or 5 moist
B material - 5 or 6 dry, 3 or 4 moist
Chroma - 3 or 4 dry or moist
Texture, less than 2 mm fraction - silt loam or loam
Rock fragments - 5 to 30 percent, dominantly pebbles
Volume of E material - 15 to 50 percent
Volume of B material - 50 to 85 percent
Base saturation - 35 to 80 percent

Bt horizons
Hue - 7.5YR or 10YR
Value - 4 to 6 dry, 3 or 4 moist
Chroma - 2 to 4 dry or moist
Texture, less than 2 mm fraction - clay loam, loam, silt loam, sandy clay loam or sandy loam
Rock fragments - 5 to 60 percent
Base saturation - 50 to 80 percent

BC horizon (when present)
Texture, less than 2 mm fraction - sandy loam, loam or silt loam
Rock fragments - 0 to 60 percent

PSME/JUCO6 Gany Ecological Type

This ecological type is named for the occurrence of Douglas-fir/common juniper habitat type on Gany soils.

Environmental Setting
Landforms: mountains
Parent Material: colluvium derived from limestone and loess
Slope range: 45 to 70 percent
Elevation: 7400 to 9800 feet
Average annual precipitation: 22 to 24 inches
Average annual temperature: 34 to 38 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Juniperus communis* habitat type.

Present communities: The Douglas-fir/common juniper h.t. is dominantly supported. Douglas-fir/curlleaf mountain mahogany community is supported on the lower eastern sideslopes of mountain ranges.

Vegetation Composition (N=15)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Picea engelmannii	13	9.0
Pinus flexilis	46	8.4
Pseudotsuga menziesii	100	17.0
Tree d.b.h. < 5 inches		
Juniperus scopulorum	33	1.4
Picea engelmannii	6	1.5
Pinus flexilis	80	1.0
Pseudotsuga menziesii	100	1.7
Shrubs		
Acer glabrum	26	0.8
Artemisia tridentata ssp. vaseyana	20	0.6
Chrysothamnus viscidiflorus	6	0.5
Juniperus communis	86	5.3
Ribes cereum	33	0.5
Ribes lacustre	6	0.5
Ribes montigenum	40	0.5
Shepherdia canadensis	33	1.4
Symphoricarpos oreophilus	53	0.9
Mosses		
Mosses	13	0.7
Lichen		
Lichen	6	0.5
Graminoids		
Agropyron sp.	13	0.5
Agropyron (Pseudoroegneria) spicatum	20	0.5
Agropyron trachycaulum	6	0.5
Carex sp.	13	0.5
Carex rossii	13	0.5
Festuca idahoensis	13	0.5
Hesperochloa kingii	66	0.5
Hordeum jubatum	13	0.5
Poa sp.	40	0.5
Poa arida	6	0.5
Poa compressa	13	0.3
Poa cusickii	6	0.5
Poa nervosa	6	0.5
Poa nervosa var. wheeleri	20	0.3
Poa sandbergii	13	0.5
Poa secunda	6	0.5
Sitanion hystrix	6	0.5
Trisetum spicatum	6	0.1
Forbs		
Achillea millefolium	33	0.5
Agoseris glauca	6	0.5
Antennaria luzuloides	6	0.5
Antennaria microphylla	20	0.5
Androsace septentrionalis	13	0.5
Aquilegia formosa	13	0.5
Aquilegia sp.	6	0.5
Arabis nuttallii	6	0.5
Arabis sp.	33	0.4
Arenaria sp.	6	0.5
Arnica cordifolia	20	0.3
Astragalus miser	26	0.8
Astragalus sp.	13	0.5
Castilleja sp.	13	0.5
Cirsium sp.	6	0.5
unknown Compositae	6	0.5
Collinsia parviflora	6	0.5
unknown Cruciferae	6	0.1
Cymopteris bipinnatus (nivalis)	6	0.5
Delphinium andersonii	6	0.5
Delphinium sp.	13	0.5
Draba sp.	6	0.5
Erigeron compositus	13	0.3
Frasera speciosa	6	0.5
Geum triflorum	6	0.5
Heuchera sp.	33	0.4
Lupinus sp.	13	0.5
Mertensia viridis (lanceolata var. nivalis)	6	0.5
Osmorhiza chilensis	6	0.1
Penstemon aridus	6	0.1
Penstemon attenuatus	6	0.5
Penstemon gracilis	6	0.5
Penstemon montanus	6	0.5
Penstemon sp.	20	0.5
Phacelia hastata	6	0.5
Phlox caespitosa	6	0.5
Phlox hoodii	6	0.5
Phlox multiflora	13	0.5
Potentilla concinna	6	0.5
Sedum lanceolatum	6	0.5
Senecio canus	26	0.5
Senecio sp.	13	0.5
Senecio streptanthifolius var. brevifolius	33	0.5
Taraxacum officinale	6	0.5
Thalictrum occidentale	6	0.5
Trifolium sp.	6	1.0
unknown Umbelliferae	13	0.5
Valeriana occidentalis	6	0.5

Soil

The soils of this ecological type are represented

by the Gany series.

Taxonomic class: Loamy-skeletal, mixed Calcic Cryoborolls

Typical pedon description
Gany extremely gravelly silt loam; supporting a Douglas-fir/common juniper habitat type, woodland; on a 67 percent slope with a northeast aspect at 8072 feet elevation. (Colors are for dry soil unless otherwise stated.)

0--2 to 0 inches; forest litter of needles; 20 percent pebbles, trace cobbles; abrupt smooth boundary.

A1--0 to 3 inches; grayish brown (10YR 5/2) extremely gravelly silt loam, dark grayish brown (10YR 4/2) moist; weak coarse subangular blocky structure parting to moderate very fine granular; soft, very friable, nonsticky and slightly plastic; many very fine roots; many very fine irregular pores; few coats of soft powdery lime on underside of rock fragments and few fine masses of soft powdery lime in matrix; slightly effervescent; 60 percent pebbles and trace cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2--3 to 9 inches; dark grayish brown (10YR 4/2) extremely gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and few fine through coarse roots; many very fine irregular pores; common hard pendants of carbonates and few coats of soft powdery lime on underside of rock fragments, few fine (less than 5 mm) masses of soft powdery lime in matrix; many fine charcoal fragments in matrix; strongly effervescent; 70 percent pebbles and trace cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1--9 to 19 inches; grayish brown (10YR 5/2) extremely gravelly loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure parting to weak very fine granular; soft, very friable, nonsticky and slightly plastic; many very fine, few fine and medium, and common coarse roots; many very fine irregular pores; many hard pendants of carbonates and few coats of soft powdery lime on underside of rock fragments, few fine (less than 5 mm) masses of soft powdery lime in matrix; strongly effervescent; 70 percent pebbles and trace cobbles; moderately alkaline (pH 8.0); clear smooth boundary.

Bk2--19 to 33 inches; pale brown (10YR 6/3) extremely gravelly loam, brown (10YR 5/3) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine, few medium and common coarse roots; many very fine and few fine tubular pores; many hard pendants of carbonates and few coats of soft powdery lime on underside of rock fragments, few fine (less than 5 mm) masses of soft powdery lime in matrix; violently effervescent; 70 percent pebbles and trace cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bkq--33 to 60 inches; light brownish gray (10YR 6/2) extremely gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and few coarse roots; many very fine and common fine irregular pores; many hard pendants of carbonates, few hard pendants of silica and many coats of soft powdery lime on underside of rock fragments; many fine (less than 5 mm) masses of soft powdery lime in matrix; violently effervescent; 85 percent pebbles and trace cobbles; moderately alkaline (pH 8.2).

Typical pedon location
Legal description: about 1350 feet west and 1450 feet north of the southeast corner section 33, T. 11 N., R. 32 E., ID.
Latitude: 44 degrees, 19 minutes, 17 seconds north.
Longitude: 112 degrees, 42 minutes, 12 seconds west.
Map Unit in which located: 1129

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
O horizon thickness - 1/4 to 3 inches
Mollic epipedon thickness - 7 to 15 inches (Requires mixing of the A horizons or the upper 7 inches of the soil profile.)
Depth to secondary carbonates - 0 to 15 inches
Clay in particle size control section, weighted average - 10 to 18 percent
Rock fragments in particle size control section,

weighted average - 40 to 85 percent
Calcium carbonate equivalent in the mineralogy control section, weighted average - 25 to 40 percent
Reaction - slightly alkaline or moderately alkaline

A horizons
Hue - 7.5YR through 2.5Y
Value - 4 or 5 dry, 3 or 4 moist
Chroma - 2 or 3 dry or moist
Effervescence - noneffervescent through violently effervescent

Bk horizons
Hue - 7.5YR through 2.5Y
Value - 5 through 7 dry, 4 through 6 moist
Chroma - 2 through 4 dry or moist
Texture, less than 2 mm - loam or sandy loam
Rock fragments - 40 to 90 percent
Effervescence - strongly effervescent or violently effervescent

Bkq horizons
Hue - 7.5YR through 2.5Y
Value - 5 through 7 dry, 4 through 6 moist
Chroma - 2 through 6 dry or moist
Rock fragments - 60 to 95 percent
Effervescence - strongly effervescent or violently effervescent

For Hire
A fully equipped Ecological Unit Inventory Crew. The crew consists of 1 Project-leader, 2 Soil Scientists, 1 Ecologist and 1 Botantist. The crew has extensive experience in Order 3 ecological unit inventories consisting of integrated potential natural vegetation, soils, landform, geology and climate units. Available May 1997. References available upon request.
Contact Terry at (208) 652-7442

PSME/CARU,CARU Sedgway Ecological Type

This ecological type is named for the occurrence of Douglas-fir/pinegrass habitat type, pinegrass phase on Sedgway soils.

Environmental Setting
Landforms: foothills and mountains
Parent Material: local alluvium or colluvium derived from loess and mixed sources
Slope range: 15 to 40 percent
Elevation: 6500 to 7100 feet
Average annual precipitation: 22 to 24 inches
Average annual temperature: 36 38 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Calamagrostis rubescens* habitat type, *Calamagrostis rubescens* phase.

Present communities: The Douglas-fir/pinegrass h.t., pinegrass phase; Douglas-fir/whortleleaf snowberry community; quaking aspen/whortleleaf snowberry/pinegrass c.t. and quaking aspen/pinegrass c.t. are supported on lightly or nondisturbed areas. The Douglas-fir/non-native grass community is supported on selectively cut and seeded areas. Communities dominated by snowbrush ceanothus, elk sedge or non-native grasses are supported on clearcut and scarified areas.

Vegetation Composition (N=15)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	6	1.0
Populus tremuloides	26	6.5
Pseudotsuga menziesii	93	28.5
Tree d.b.h. < 5 inches		
Abies lasiocarpa	6	0.5
Pinus contorta	6	0.5
Pinus flexilis	6	0.5
Populus tremuloides	46	16.2
Pseudotsuga menziesii	80	2.1
Shrubs		
Acer glabrum	13	0.7
Amelanchier alnifolia	20	0.5

Artemisia tridentata ssp. vaseyana	13	0.5
Artemisia tridentata ssp. wyomingensis	6	0.5
Berberis repens	46	2.0
Lonicera utahensis	6	0.5
Prunus virginiana ssp. melanocarpa	13	1.7
Ribes sp.	6	0.5
Rosa sp.	13	0.5
Salix spp.	6	1.0
Shepherdia canadensis	6	1.0
Spiraea betulifolia	33	0.5
Symphoricarpos oreophilus	100	3.2
Graminoids		
Agropyron dasystachyum	6	0.5
Agropyron (Pseudoroegneria) spicatum	13	0.5
Agropyron sp.	6	0.5
Agropyron trachycaulum	20	0.6
Bromus carinatus	53	2.0
Bromus sp.	26	0.8
Calamagrostis rubescens	86	17.6
Carex geyeri	66	7.1
Carex hoodii	6	1.0
Carex raynoldsii	6	0.5
Carex sp.	6	0.5
Elymus glaucus	40	1.6
Elymus sp.	6	0.5
Melica sp.	6	0.5
Melica spectabilis	13	1.2
Phleum alpinum	6	0.5
Phleum pratense	40	0.8
Poa nervosa	26	1.2
Poa nevadensis	6	0.5
Poa nervosa var. wheeleri	13	0.7
Poa pratensis	13	1.2
Poa sp.	26	0.5
Stipa columbiana	6	0.5
Trisetum spicatum	6	0.5
Unknown grasses w/ >trace cover	6	2.0
Forbs		
Achillea millefolium	86	0.5
Agastache urticifolia	13	1.7
Agoseris aurantiaca	6	0.5
Agoseris glauca	33	0.5
Antennaria luzuloides	6	0.5
Antennaria microphylla	20	0.5
Antennaria racemosa	20	0.5
Androsace septentrionalis	13	0.5
Antennaria sp.	6	1.0
Apocynum androsaemifolium	6	0.5
Aquilegia flavescens	6	0.5
Aquilegia sp.	20	0.5
Arnica cordifolia	73	2.4
Aster conspicuus	6	1.0
Aster engelmannii	33	1.0
Aster integrifolius	6	0.5
Aster occidentalis	20	0.5
Aster perelegans	6	0.5
Aster sp.	13	0.5
Astragalus miser	40	0.5
Astragalus sp.	13	0.5
Campanula rotundifolia	6	0.5
Castilleja miniata	6	0.5
Claytonia lanceolata	6	0.5
unknown Compositae	20	0.6
Collinsia parviflora	20	0.5
Corallorhiza striata	6	0.5
Crepis sp.	6	0.5
Delphinium nuttallianum	13	0.5
Delphinium occidentale	6	3.0
Epilobium angustifolium	33	0.5
Epilobium minutum	6	0.5
Epilobium sp.	13	0.5
Erigeron peregrinus	6	0.5
Erigeron sp.	6	0.5
Erythronium grandiflorum	33	1.2
Fragaria sp.	6	0.5
Frasera speciosa	6	0.5
Fragaria vesca	66	1.0
Fragaria virginiana	46	0.8
Fritillaria atropurpurea	13	0.5
Galium boreale	13	0.5
Galium sp.	6	0.5
Geranium viscosissimum	93	1.1
Habenaria sp.	6	0.5
Hackelia micrantha (jessicae)	46	0.5
Hackelia sp.	20	0.6
Hieracium albiflorum	13	0.5
Hieracium cynoglossoides	26	0.5
Hieracium sp.	13	0.5
Hydrophyllum capitatum	20	0.5
Lithophragma parviflorum	13	0.5
Lithophragma tenellum	6	0.5
Lupinus argenteus	86	1.1
Lupinus sericeus	6	0.5
Lupinus sp.	6	0.5
Mertensia oblongifolia	6	0.5
Microsteris gracilis	20	0.5
Nemophila parviflora	20	0.5
Osmorhiza chilensis	26	0.5
Osmorhiza occidentalis	33	1.2

Osmorhiza sp.	6	0.5
Oxytropis campestris	20	1.6
Pedicularis bracteosa	6	0.5
Pedicularis racemosa	6	0.5
Perideridia gairdneri	66	0.5
Perideridia sp.	6	0.5
Phacelia heterophylla	13	0.5
Phacelia sericiea	13	0.5
Polygonum douglasii	6	0.5
Potentilla glandulosa	66	0.5
Potentilla gracilis	46	0.5
Potentilla sp.	6	0.5
Pyrola secunda	6	0.5
Ranunculus uncinatus	13	0.5
Rudbeckia occidentalis	20	2.0
Senecio serra	26	0.6
Silene sp.	6	0.5
Smilacina racemosa	6	0.5
Smilacina stellata	20	0.5
Stellaria americana	6	0.5
Stellaria (Pseudostellaria) jamesiana	6	0.5
Taraxacum officinale	73	0.5
Thalictrum fendleri	6	12.0
Thalictrum occidentale	73	3.2
unknown forbs w/ > trace cover	6	2.0
Valeriana occidentalis	33	0.7
Viola nuttallii	26	0.5
Viola sp.	13	0.5
Wyethia amplexicaulis	6	2.0

Soil

The soils of this ecological type are represented by the Sedgway series.

Taxonomic class: Loamy-skeletal, mixed Boralfic Cryoborolls

Typical pedon description

Sedgway very gravelly loam supporting Douglas-fir/pinegrass habitat type, pinegrass phase; on a 35 percent west facing slope; about 7000 feet elevation. (Colors are for dry soil unless otherwise noted.)

Oi--1 to 0 inches; Forest litter; slightly decomposed needles, twigs and cones; abrupt smooth boundary.

A1--0 to 3 inches; dark grayish brown (10YR 4/2) very gravelly loam, dark brown (10YR 2/2) moist; weak coarse granular structure parting to weak very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, few medium through coarse roots; many very fine and common fine irregular pores; 30 percent pebbles, 5 percent cobbles and trace stones; neutral (pH 6.8); abrupt wavy boundary.

A2--3 to 10 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to weak very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, few medium and coarse roots; many very fine irregular pores; 30 percent pebbles, 5 percent cobbles and trace stones; neutral (pH 7.0); abrupt smooth boundary.

E--10 to 15 inches; light brownish gray (10YR 6/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure parting to weak very fine granular; slightly hard, very friable, nonsticky and slightly plastic; many very fine, few fine through coarse roots; many very fine irregular pores; 30 percent pebbles, 5 percent cobbles and trace stones; neutral (pH 7.0); clear smooth boundary.

Bt1--15 to 28 inches; yellowish brown (10YR 5/4) very gravelly loam, dark brown (10YR 4/3) moist; moderate coarse subangular blocky structure parting to strong fine subangular blocky; slightly hard, firm, slightly sticky and slightly plastic; common very fine, few fine through medium roots; few very fine tubular pores; many faint dark brown (10YR 4/3) moist clay films on ped faces lining pores and on rock fragments; 25 percent pebbles, 10 percent cobbles and 5 percent stones; neutral (pH 7.0); gradual smooth boundary.

Bt2--28 to 42 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark brown (10YR 4/3) moist; moderate very coarse subangular blocky structure parting to strong medium subangular blocky; hard, firm, sticky and plastic; common very fine roots; few very fine tubular pores; many faint dark brown (10YR 4/3) moist clay films on ped faces, lining pores and on rock fragments; 25 percent pebbles, 15 percent cobbles and 5 stones; neutral (pH 7.0); clear smooth boundary.

BC--42 to 54 inches; light yellowish brown

(10YR 6/4) very cobbly loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; 20 percent pebbles, 20 percent cobbles, 5 percent stones; neutral (pH 6.8); gradual smooth boundary.

C--54 to 60 inches; light yellowish brown (10YR 6/4) very cobbly loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 20 percent pebbles, 20 percent cobbles, 10 percent stones; neutral (pH 6.6).

Typical pedon location
Legal description: about 1800 feet north and 1600 feet west of the southeast corner of sec. 35, T.13N., R.37E., ID.
Latitude: 44 degrees, 24 minutes, 30 seconds north.
Longitude: 111 degrees, 4 minutes, 15 seconds west.
Map unit in which located: 1149

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 14 inches.
Depth to argillic horizon - 14 to 22 inches.
Depth of solum - greater than 40 inches.
Clay content in particle size control section averages - 24 to 34 percent.
Rock fragments in the particle size control section - averages 40 to 60 percent.
Reaction - slightly acid to neutral.

A horizons:
Value - 4 or 5 dry, 2 to 3 moist
Chroma - 2 or 3 dry and moist

E horizon:
Value - 6 or 7 dry and 5 or 6 moist
Chroma - 2 or 3 dry or moist
Texture less than 2mm - loam or sandy loam
Rock fragments - 30 to 50 percent

Bt horizons:
Value - 5 or 6 dry and 4 or 5 moist
Chroma - 3 or 4 dry and moist
Texture less than 2mm - loam, clay loam or sandy clay loam
Rock fragments - 35 to 60 percent

BC and C horizons:
Hue - 7.5YR or 10 YR
Value - 5 or 6 dry and 4 or 5 moist
Chroma - 3 or 4 dry and moist
Texture less than 2mm - sandy loam or loam
Rock fragments - 35 to 65 percent

Other: an E/B horizon is present in some pedons

PSME/JUCO6 Pikaden Ecological Type

This ecological type is named for the occurrence of Douglas-fir/common juniper habitat type on Pikaden soils.

Environmental Setting
Landforms: mountains
Parent Material: colluvium derived from quartzite and loess
Slope range: 40 to 65 percent
Elevation: 7500 to 9800 feet
Average annual precipitation: 18 to 24 inches
Average annual temperature: 32 to 38 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Juniperus communis* habitat type.

Present communities: The Douglas-fir/common juniper h.t. is commonly supported.

Vegetation Composition (N=8)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Juniperus scopulorum	12	0.5
Pinus contorta	12	1.0
Pinus flexilis	37	10.0
Pseudotsuga menziesii	87	17.7
Tree d.b.h. < 5 inches		
Juniperus scopulorum	12	0.5
Picea engelmannii	12	0.5
Pinus flexilis	37	0.8

Pseudotsuga menziesii	75	13.3
Shrubs		
Artemisia tridentata ssp. vaseyana	37	0.3
Juniperus communis	87	19.1
Ribes cereum	25	0.3
Ribes montigenum	12	0.5
Symphoricarpos oreophilus	62	1.0
Lichen		
Lichen	12	0.5
Graminoids		
Agropyron (Pseudoroegneria) spicatum	37	0.2
Carex rossii	12	0.1
Carex sp.	12	0.1
Festuca idahoensis	75	0.4
Hesperochloa kingii	25	0.5
Hordeum jubatum	12	0.1
Koeleria nitida (cristata) (macrantha)	12	0.1
Poa compressa	12	0.1
Poa nervosa	62	0.5
Poa sandbergii	12	0.5
Poa sp.	12	0.1
Trisetum spicatum	25	0.5
Forbs		
Antennaria microphylla	50	0.4
Antennaria racemosa	25	0.5
Aquilegia sp.	12	0.1
Arabis sp.	12	0.1
Arenaria congesta	12	0.1
Arnica cordifolia	12	0.1
unknown Compositae	12	0.1
Erigeron compositus	12	0.1
Heuchera sp.	37	0.3
Lupinus sp.	12	0.5
Penstemon montanus	25	0.5
Penstemon sp.	25	0.3
Potentilla glandulosa	50	0.3
Potentilla gracilis	12	0.1
Potentilla sp.	25	0.1
Pyrola secunda	12	0.5
Sedum lanceolatum	37	0.2
Senecio canus	12	0.1
Senecio dimorphophyllus	25	0.3
Senecio streptanthifolius var. brevifolius	25	0.5
Solidago multiradiata	12	0.5

Soil

The soils of this ecological type are represented by the Pikaden series.

Taxonomic class: Sandy-skeletal, mixed Typic Cryochrepts

Typical pedon description

Pikaden extremely gravelly silt loam; supporting a Douglas-fir/common juniper habitat type; on a 55 percent slope with a northwest aspect at 7720 feet elevation. (Colors are for dry soil unless otherwise noted.)

0–1/2 to 0 inches; forest litter of needles; 15 percent pebbles, 10 percent cobbles, trace stones; abrupt broken boundary.

A–0 to 5 inches; brown (10YR 4/3) extremely gravelly silt loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure parting to weak very fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, few medium and coarse roots; many very fine irregular pores; 50 percent pebbles, 10 percent cobbles; slightly acid (pH 6.4); abrupt smooth boundary.

Bw–5 to 12 inches; light brownish gray (10YR 6/2) extremely gravelly loam, dark grayish brown (10YR 4/2) moist; weak very fine granular structure; soft very friable, nonsticky and slightly plastic; many very fine, few medium and coarse roots; many very fine irregular pores; many faint coats of silt on upper surfaces of rock fragments; 80 percent pebbles, 5 percent cobbles; slightly acid (pH 6.4); clear smooth boundary.

BC–12 to 27 inches; light brownish gray (10YR 6/2) extremely gravelly loamy sand, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine, few medium and coarse roots; many very fine tubular pores; many faint coats of silt on upper surfaces of rock fragments; 80 percent pebbles, 5 percent cobbles; slightly acid (pH 6.6); gradual smooth boundary.

C–27 to 60 inches; fragmental; single grain; loose, nonsticky and nonplastic; common very fine roots; many coarse irregular pores; many coats of silt and sand on upper surfaces of rock fragments; 95 percent pebbles, 5 percent cobbles.

Typical pedon location

Legal description: about 100 feet west and 1950 feet north of the southeast corner section 15, T.

13 N., R. 31 E., ID.
Latitude: 44 degrees, 27 minutes, 11 seconds north.
Longitude: 112 degrees, 47 minutes, 50 seconds west.
Map Unit in which located: 1154

Range in characteristics
Profile:
Depth class - very deep
Drainage class - somewhat excessively drained
O horizon thickness - absent to 4 inches
Ochric epipedon thickness - 2 to 9 inches
Depth to base of cambic horizon - 10 to 20 inches
Depth to fragmental material - 25 to greater than 50 inches

A horizons
Hue - 7.5YR through 2.5Y
Value - 4 or 5 dry, 3 or 4 moist
Chroma - 2 or 3 dry or moist
Reaction - slightly acid or neutral

Bw horizon
Hue - 7.5YR or 10YR
Value - 5 or 6 dry, 4 or 5 moist
Chroma - 2 or 3 dry or moist
Texture, less than 2 mm fraction - sandy loam, loam or silt loam
Rock fragments - 70 to 90 percent
Reaction - moderately acid through neutral

BC horizon
Hue - 5YR through 10YR
Value - 6 or 7 dry, 5 or 6 moist
Chroma - 2 or 3 dry or moist
Texture, less than 2 mm fraction - loamy sand or sand
Rock fragments - 70 to 90 percent
Reaction - moderately acid through neutral

C horizon
Texture - extremely gravelly sand, extremely gravelly loamy sand or fragmental

PSME/SPBE2 Lasac, warm Ecological Type

This ecological type is named for the occurrence of Douglas-fir/white spirea habitat type, pinegrass or white spirea phases on Lasac, warm soils.

Environmental Setting
Landforms: mountains
Parent Material: local alluvium, colluvium or residuum derived from tephera and loess
Slope range: 35 to 60 percent
Elevation: 6800 to 8000 feet
Average annual precipitation: 30 to 60 inches
Average annual temperature: 30 to 37 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Spiraea betulifolia* habitat type, *Calamagrostis rubescens* or *Spiraea betulifolia* phases.

Present communities: The Douglas-fir/white spirea h.t., pinegrass phase; lodgepole pine/white spirea c.t. and Douglas-fir/pinegrass community are commonly supported.

Vegetation Composition (N=4)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	75	13.6
Pseudotsuga menziesii	50	17.5
Tree d.b.h. < 5 inches		
Abies lasiocarpa	25	1.0
Pinus albicaulis	50	0.5
Pinus contorta	75	5.0
Populus tremuloides	25	0.5
Pseudotsuga menziesii	75	3.0
Shrubs		
Amelanchier alnifolia	25	0.5
Berberis repens	75	1.1
Lonicera utahensis	25	0.5
Prunus virginiana ssp. melanocarpa	25	5.0
Ribes viscosissimum	25	0.5
Rubus parviflorus	50	0.5
Shepherdia canadensis	50	0.5
Spiraea betulifolia	100	7.7
Symphoricarpos oreophilus	25	0.5
Graminoids		
Bromus sp.	25	0.5
Calamagrostis rubescens	75	6.1
Carex geyeri	75	1.1

Carex rossii	75	2.0
Elymus glaucus	25	0.5
Poa sp.	75	0.5
Forbs		
Antennaria microphylla	25	0.5
Arnica cordifolia	75	0.5
Aster conspicuus	25	2.0
Corallorhiza striata	25	0.5
Epilobium angustifolium	25	0.5
Epilobium sp.	25	0.5
Fritillaria atropurpurea	25	0.5
Fragaria vesca	25	0.5
Fragaria virginiana	25	0.5
Hieracium albiflorum	75	0.6
Hieracium cynoglossoides	25	0.5
Microsteris gracilis	25	0.5
Osmorhiza chilensis	25	0.5
Penstemon sp.	25	0.5
Phacelia heterophylla	25	0.5
Potentilla glandulosa	25	0.5
Pyrola chlorantha	50	0.5
Pyrola dentata	25	0.5
Pyrola secunda	25	1.0
Senecio dimorphophyllus	75	2.0
Smilacina racemosa	25	0.5
Stellaria americana	25	0.5
Thalictrum occidentale	50	0.5
Tragopogon dubius	25	0.5

Soil
The soils of this ecological type are represented by the Lasac series, warm phase.

Taxonomic class: Ashy-skeletal Vitrandic Cryochrepts

Typical pedon description
Lasac, warm sandy loam, supporting a Douglas-fir/white spirea habitat type, pinegrass phase, woodland; on a convex slope of 45 percent with a east aspect: about 7310 feet elevation. (Colors are for air dry soil unless otherwise noted.)

O--1 to 0 inches; forest litter of needles, cones and twigs; abrupt smooth boundary.

A1--0 to 1 inches; very dark gray (10YR 3/1) sandy loam, black (10YR 2/1) moist; few very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine irregular pores; trace pebbles; moderately acid (pH 5.8); abrupt smooth boundary.

A2--1 to 8 inches; grayish brown (10YR 5/2) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; weak coarse subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine , few medium and coarse roots; many very fine irregular pores; 30 percent pebbles, trace cobbles; moderately acid (pH 5.8); abrupt smooth boundary.

Bw--8 to 19 inches; very pale brown (10YR 7/3) very gravelly sandy loam, palebrown (10YR 6/3) moist; few medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, few fine through coarse roots, many very fine tubular pores; few distinct (10YR 5/4) stains on underside of rock fragments; 50 percent pebbles, 5 percent cobbles; slightly acid (pH 6.2); clear smooth boundary.

2BC--19 to 30 inches; very pale brown (10YR 8/2) very gravelly loamy sand, light gray (10YR 7/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine, few fine through coarse roots; many fine irregular pores; few distinct (10YR 5/4) stains on underside of rock fragments; 55 percent pebbles, 20 percent cobbles, 5 percent stones; slightly acid (pH 6.2); gradual smooth boundary.

2C1--30 to 46 inches; very pale brown (10YR 8/2) extremely cobbly loamy sand, light gray (10YR 7/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fineroots; many very fine irregular pores; few distinct (10YR-&.5YR 3/2 or 3/3) stains on underside of rock fragments; 35 percent pebbles, 50 percent cobbles, 5 percent stones; slightly acid (pH 6.2); gradual smooth boundary.

2C2--46 to 60 inches; very pale brown (10YR 8/2) extremely cobbly loamy sand, light gray (10YR 7/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 30 percent pebbles, 50 percent cobbles, 5 percent stones; slightly acid (pH 6.2).

Typical pedon location
Legal description: about 1800 feet south and 600 feet west of the northeast corner of section 31, T. 13 N., R, 38 E., ID.
Latitude: 44 degrees, 24 minutes, 47 seconds north.
Longitude: 112 degrees, 1 minute, 23 seconds

west.
Map unit in which located: 1230

Range of characteristics
Profile:
Depth class - very deep
Drainage - somewhat excessively drained
Ochric epipedon thickness - 4 to 8 inches
Depth to lithologic discontinuity - 14 to 22 inches
Depth of andic soil properties - 14 to 22 inches
Solum thickness - 14 to 30 inches
Volcanic glass in the 0.02 to 2.0 mm fraction - greater than 30 percent

O horizon:
Thickness - 0 to 2 inches thick
Form - commonly forest litter of needles, twigs and leaves on lightly or undisturbed pedons and absent on pedons where recent, heavy mechanical disturbance has occurred.

A horizon:
Value - 3 or 5 dry, 2 or 3 moist
Chroma - 1 to 4 dry or moist
Volcanic glass content in the 0.02 to 2.0 mm fraction - 50 to 90 percent
Ammonium oxalate extractable Al plus 1/2 Fe - 0.4 to 1.0 percent
15-bar water (air dried samples) - 7 to 11 percent
Phosphate retention - 35 to 60 percent
Bulk density - 0.65 to 1.00 grams per cubic centimeter
Reaction - very strongly to moderately acid

Bw horizon:
Value - 3 or 4 moist, 5 or 6 dry
Chroma - 3 to 6 dry or moist
Texture, less than 2 mm fraction - silt loam, sandy loam, coarse sandy loam
Pebbles - 10 to 35 percent
Cobbles, stones or boulders - 0 to 10 percent
Volcanic glass content in the 0.02 to 2.0 mm fraction - 50 to 90 percent
Ammonium oxalate extractable Al plus 1/2 Fe - 0.4 to 1.0 percent
15-bat water (air dried samples) - 7 to 11 percent
Phosphate retention - 35 to 60 percent
Bulk density - 0.80 to 1.00 grams per cubic centimeter
Reaction - very strongly to slightly acid

2BC horizon:
Hue - 2.5Y or 10YR
Value - 6 or 8 dry; 4 to 7 moist
Chroma - 2 or 3 dry or moist
Texture, less than 2 mm fraction - loamy sand, loamy coarse sand or coarse sandy loam
Pebbles - 30 to 60 percent
Cobbles, stones or boulders - 5 to 35 percent
Volcanic glass content in the 0.02 to 2.0 mm fraction - 50 to 95 percent
Ammonium oxalate extractable Al plus 1/2 Fe - less than 0.4 percent
Phosphate retention - less than 35 percent
Reaction - very strongly to slightly acid

2C horizons:
Hue - 7.5YR to 5Y
Value - 3 to 8 dry, 2 to 7 moist
Chroma - 0 to 2 dry or moist
Texture, less than 2 mm fraction - sand, coarse sand or loamy sand
Pebbles - 30 to 60 percent
Cobbles, stones or boulders - 5 to 55 percent
Volcanic glass content in the 0.02 to 2.0 mm fraction - 60 to 95 percent
Ammonium oxalate extractable Al plus 1/2 Fe - less than 0.4 percent
Reaction - slightly acid or neutral

PSME/SYAL Cherpi Ecological Type

This ecological type is named for the occurrence of Douglas-fir/common snowberry habitat type on Cherpi soils.

This is a weakly defined eological type and more documentation will be collected.

Environmental Setting
Landforms: foothills and mountains
Parent Material: local alluvium or colluvium derived from loess and rhyolitic tuff
Slope range: 12 to 60 percent
Elevation: 5500 to 5800 feet
Average annual precipitation: 18 to 24 inches
Average annual temperature: 36 to 41 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological

type is *Pseudotsuga menziesii/Symphoricarpos albus* habitat type.

Present communities: The quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/pinegrass c.t. is commonly supported.

Vegetation Composition (N=1)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Populus tremuloides	100	15.0
Tree d.b.h. < 5 inches		
Populus tremuloides	100	30.5
Shrubs		
Amelanchier alnifolia	100	0.5
Berberis repens	100	1.0
Ceanothus velutinus	100	0.5
Prunus virginiana ssp. melanocarpa	100	15.0
Rosa acicularis	100	15.0
Symphoricarpos oreophilus	100	10.0
Graminoids		
Agropyron sp.	100	0.5
Calamagrostis rubescens	100	3.0
Forbs		
Achillea millefolium	100	0.5
Agoseris aurantiaca	100	0.5
Agastache urticifolia	100	0.5
Apocynum androsaemifolium	100	0.5
Arnica cordifolia	100	1.0
Aster integrifolius	100	0.5
Balsamorhiza sagittata	100	0.5
Cirsium sp.	100	0.5
Corallorhiza maculata	100	0.5
Epilobium angustifolium	100	0.5
Galium triflorum	100	0.5
Geranium viscosissimum	100	0.5
Hackelia micrantha (jessicae)	100	0.5
Hieracium sp.	100	0.5
Lomatium sp.	100	0.5
Osmorhiza chilensis	100	0.5
Senecio pauperculus	100	0.5
Senecio serra	100	0.5
Smilacina racemosa	100	0.5
Stellaria americana	100	0.5
Taraxacum officinale	100	0.5
Thalictrum occidentale	100	0.5
Tragopogon dubius	100	0.5

Soil

The soils of this ecological type are represented by the Cherpi series.

Taxonomic class: Ashy-skeletal Vitrandic Cryoborolls

Typical pedon description

Cherpi gravelly loam supporting a quaking aspen/serviceberry- whortleleaf snowberry/pinegrass community type, woodland; on a 50 percent west facing slope; about 5580 feet elevation. (Colors are for dry soil unless otherwise noted.)

Oi--1 to 0 inches; forest litter - twigs, leaves and grass; abrupt smooth boundary.

A1--0 to 3 inches; very dark grayish brown (10YR 3/3) gravelly loam, very dark brown (10YR 2/2) moist; moderate very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine common fine through coarse roots; many very fine irregular pores; 20 percent pebbles; neutral (pH 6.6); abrupt smooth boundary.

A2--3 to 11 inches; brown (7.5YR 5/3) very gravelly loam, dark brown (7.5YR 3/2) moist; moderate very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine through coarse roots; many very fine irregular pores; 20 percent pebbles, 10 percent cobbles and 10 percent stones; neutral (pH 6.6); clear wavy boundary.

Bw1--11 to 27 inches; light reddish brown (5YR 6/3) very gravelly sandy loam, reddish brown (5YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine through coarse roots; common very fine tubular pores; 30 percent pebbles, 15 percent cobbles and 10 percent stones; neutral (pH 6.6); clear wavy boundary.

Bw2--27 to 44 inches; light reddish brown (5YR 6/3) very gravelly sandy loam, reddish brown (5YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, few fine and medium roots; common very fine tubular pores; 45 percent pebbles and 10 percent

cobbles; slightly acid (pH 6.2); clear smooth boundary.

C—44 to 60 inches; light reddish brown (5YR 6/4) extremely gravelly sandy loam, yellowish brown (5YR 4/6) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine few fine through coarse roots; many very fine irregular pores; 70 percent pebbles and 10 percent cobbles; slightly acid (pH 6.4).

Typical pedon location
Legal description: about 300 feet east and 500 feet north of the southwest corner of section 6, T. 9 N., R 43 E.
Latitude: 44 degrees, 7 minutes, 50 seconds north.
Longitude: 111 degrees, 23 minutes, 50 seconds west.
Map unit in which located: 1410

Range in characteristics
Profile:
Depth class: very deep
Drainage class: well drained
Mollic epipedon thickness - 10 to 16 inches
Solum thickness - 40 inches or greater
Depth to bedrock - greater than 60 inches
Ammonium oxalate extractable aluminum plus 1/2 iron in the 0 to 30 inch zone - 0.05 to 0.4 percent
Volcanic glass content of the less than 2 mm fraction in the 0 to 30 inch zone - greater than 50 percent
Rock fragments in the particle size control section - averages 35 to 70 percent

A horizons:
Hue - 10YR or 7.5YR
Value - 3 to 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry, 1 or 2 moist
Reaction - moderately acid or neutral

B horizons:
Hue - 10YR, 7.5YR or 5YR
Value - 4 to 6 dry, 3 to 5 moist
Chroma - 2 to 6 dry and moist
Texture - very gravelly loam, very gravelly sandy loam, extremely gravelly sandy loam and extremely gravelly loam
Pebbles - 25 to 60 percent
Cobbles - 5 to 20 percent
Stones - 0 to 10 percent
Reaction - moderately acid or neutral

C horizons:
Hue - 10YR, 7.5YR or 5YR
Value - 6 to 8 dry, 4 or 5 moist
Chroma - 3 to 6 dry and moist
Texture - extremely gravelly sandy loam, extremely cobbly sandy loam
Rock fragments - 60 to 90 percent
Reaction - moderately acid to mildly alkaline
Other - some pedons have C horizons consisting of cinders

PSME/SYAL Lag Ecological Type

This ecological type is named for the occurrence of Douglas-fir/common snowberry habitat type on Lag soils.

Environmental Setting
Landforms: canyons, foothills, mountains and escarpments of plateaus
Parent Material: local alluvium or colluvium derived from mixed volcanic rocks and loess
Slope range: 25 to 70 percent
Elevation: 5300 7000 feet
Average annual precipitation: 20 to 25 inches
Average annual temperature: 35 to 41 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Symphoricarpos albus* habitat type.

Present communities: The Douglas-fir/common snowberry h.t.; quaking aspen-Douglas-fir/Saskatoon serviceberry c.t.; quaking aspen-Douglas-fir/whortleleaf snowberry c.t.; quaking aspen/whortleleaf snowberry/pinegrass c.t.; quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/pinegrass c.t.; quaking aspen/Saskatoon serviceberry-whortleleaf snowberry/Fendlers's meadowrue c.t.; quaking aspen/Saskatoon serviceberry/brackenfern c.t.; and communities dominated by snowbrush ceanothus are commonly supported.

Vegetation Composition (N=25)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	20	1.3
Populus tremuloides	32	6.3
Pseudotsuga menziesii	48	21.1
Tree d.b.h. < 5 inches		
Pinus contorta	24	1.5
Populus tremuloides	64	13.8
Pseudotsuga menziesii	36	2.2
Shrubs		
Acer glabrum	8	1.5
Amelanchier alnifolia	92	5.4
Arctostaphylos uva-ursi	4	1.0
Artemisia tridentata ssp. vaseyana	4	1.0
Berberis repens	84	6.0
Ceanothus velutinus	32	17.8
Clematis columbiana	12	0.6
Crataegus douglasii	12	1.6
Lonicera utahensis	4	2.0
Prunus virginiana ssp. melanocarpa	92	7.7
Purshia tridentata	4	4.0
Rosa sp.	20	2.8
Rubus parviflorus	12	5.5
Salix scouleriana	24	2.6
Sorbus scopulina	36	2.8
Spiraea betulifolia	84	12.6
Symphoricarpos albus	80	19.5
Symphoricarpos sp.	4	6.0
Symphoricarpos oreophilus	24	5.8
Graminoids		
Agropyron intermedium	4	0.5
Agropyron trachycaulum	20	0.5
Bromus carinatus	52	1.1
Bromus sp.	4	5.0
Calamagrostis rubescens	84	12.8
Carex geyeri	24	16.5
Carex sp.	32	2.4
Carex rossii	36	6.3
Elymus glaucus	68	1.4
Melica bulbosa	36	0.6
Phleum pratense	8	0.7
Poa sp.	8	0.7
Poa pratensis	16	1.7
Poa secunda	4	0.5
Stipa sp.	8	2.2
Trisetum spicatum	4	1.0
Unknown grasses w/ >trace cover	8	6.0
Forbs		
Achillea millefolium	36	1.0
Agoseris aurantiaca	4	0.5
Agastache urticifolia	48	2.6
Antennaria sp.	4	3.0
Apocynum androsaemifolium	20	3.1
Arabis sp.	4	0.5
Arnica cordifolia	20	2.9
Aster engelmannii	36	4.0
Aster sp.	8	4.2
Astragalus sp.	4	1.0
Balsamorhiza sagittata	20	3.0
Castilleja sp.	8	1.0
unknown Compositae	24	1.0
Collinsia parviflora	4	0.5
unknown Cruciferae	4	0.5
Epilobium angustifolium	52	3.5
Epilobium minutum	8	0.5
Erigeron sp.	4	4.0
Eriogonum heracleoides	8	0.5
Eriogonum sp	4	0.5
Fragaria sp.	4	1.0
Fritillaria atropurpurea	4	0.5
Fragaria virginiana	4	2.0
Galium sp.	4	5.0
Galium triflorum	4	0.5
Geranium viscosissimum	72	3.8
Goodyera oblongifolia	4	0.5
Helianthella uniflora	8	0.5
Hieracium albiflorum	12	1.0
Hieracium sp.	4	0.5
Hydrophyllum capitatum	4	0.5
Iliamna rivularis	8	1.7
Ligusticum filicinum	4	2.0
Lupinus argenteus	52	2.9
Lupinus sp.	20	4.8
Lupinus sericeus	4	2.0
Malva sp.	4	0.5
Microsteris gracilis	4	3.0
Osmorhiza chilensis	48	2.2
Osmorhiza occidentalis	4	4.0
Perideridia gairdneri	8	0.7
Pedicularis racemosa	4	3.0
Potentilla glandulosa	8	0.5
Polygonum persicaria	4	0.5
Potentilla sp.	40	1.0
Pteridium aquilinum	8	15.0
Senecio sp.	8	2.2
Senecio serra	12	2.3
Smilacina sp.	4	0.5
Smilacina racemosa	52	1.0
Taraxacum officinale	12	0.5
Thalictrum fendleri	8	29.0
Thalictrum occidentale	72	5.0
Tragopogon dubius	8	0.5
unknown Umbelliferae	8	0.5

unknown forbs w/ > trace cover	*48*	*2.5*
Viguiera (Heliomeris) multiflora	*8*	*0.7*

Soil
The soils of this ecological type are represented by the Lag series.

Taxonomic class: Loamy-skeletal, mixed Typic Cryoborolls

Typical pedon description
Lag very gravelly loam, supporting an Douglas-fir/common snowberry habitat type, woodland; on 32 percent slope with a south aspect at about 6600 feet elevation. (Colors are for dry soil unless otherwise noted.)

A1--0 to 7 inches; very dark gray (10YR 3/1) very gravelly loam, black (10YR 2/1) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine through medium and common coarse roots; many very fine irregular and tubular pores; 25 percent pebbles, 5 percent cobbles and 10 percent stones; neutral (pH 6.8); clear smooth boundary.

A2--7 to 15 inches; very dark grayish brown (10YR 3/2) extremely cobbly loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky parting to weak fine granular structure; soft, very friable, nonsticky and slightly plastic; common very fine through coarse roots; many very fine and fine irregular pores, common very fine tubular pores; 15 percent pebbles and 35 percent cobbles and 10 percent stones; neutral (pH 6.8); abrupt smooth boundary.

2Bw--15 to 23 inches; pale brown (10YR 6/3) extremely cobbly loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine through medium roots, few coarse roots; many very fine irregular pores, few very fine tubular pores; 35 percent pebbles, 35 percent cobbles and 10 percent stones; neutral (pH 6.6); abrupt wavy boundary.

2BC--23 to 62 inches; pale brown (10YR 6/3) extremely cobbly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine through medium roots; many very fine irregular pores, common very fine tubular pores; few distinct clay films on rock faces, few distinct iron stains lining pores; 25 percent pebbles, 35 percent cobbles and 20 percent stones; slightly acid (pH 6.4).

Typical pedon location
Legal description: about 1400 feet west and 2600 feet north of the southeast corner of section 5, T. 10 N., R. 42 E., ID.
Latitude: 44 degrees, 13 minutes, 16 seconds north.
Longitude: 111 degrees, 31 minutes, 16 seconds west.
Map unit in which located: 1592

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Mollic epipedon thickness - 10 to 15 inches
Clay in particle size control section, weighted average - 5 to 16 percent
Rock fragments in particle size control section, weighted average - 50 to 90 percent
Reaction - slightly acid to neutral

0 horizon:
Thickness - less than 1 to 4 inches

A and AB horizons:
Hue - 10YR or 7.5YR
Value - 3 to 5 dry; 2 or 3 moist
Chroma - 1 to 3 dry or moist
Rock fragments - 0 to 70 percent
Pebbles - 0 to 50 percent
Cobbles - 0 to 50 percent
Stones or boulders - 0 to 15 percent

Bw horizons:
Value - 5 to 7 dry, 3 to 5 moist
Chroma - 2 to 4 dry or moist
Texture, less than 2 mm fraction - loam, silt loam or sandy loam
Rock fragments - 40 to 90 percent
Pebbles - 5 to 50 percent
Cobbles - 0 to 50 percent
Stones or boulders - 0 to 30 percent

BC or C horizons:
Hue - 10YR or 2.5Y
Value - 5 to 7 dry, 3 to 5 moist
Chroma - 2 or 3 dry or moist

Texture, less than 2 mm fraction - loam or sandy loam
Rock fragments - 50 to 90 percent
Pebbles - 5 to 50 percent
Cobbles - 5 to 65 percent
Stones or boulders - 0 to 70 percent

Related ecological types
ABLA/ACGL Lag, humid
PSME/SYAL Lag, till substratum

The ABLA/ACGL Lag, humid ecological type occurs on moister landscape positions (mostly north facing slopes).

The PSME/SYAL Lag, till substratum ecological type has Lag soils with glacial till substratums.

PSME/SYAL Lag, till substratum Ecological Type

Incompletely defined at time of this printing.

PSME/SYAL Potrmound Ecological Type

This ecological type is named for the occurrence of Douglas-fir/common snowberry habitat type on Potrmound soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: caldera floor
Parent Material: loess and residual rock fragments
Slope range: 4 to 35 percent
Elevation: 5900 to 6400 feet
Average annual precipitation: 20 to 28 inches
Average annual temperature: 37 to 40 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Symphoricarpos albus* habitat type.

Present communities: The Douglas-fir/common snowberry h.t. is present. The quaking aspen-lodgepole pine/whortleleaf snowberry and quaking aspen-Douglas-fir/whortleleaf snowberry c.t.s are commonly supported.

Vegetation Composition (N=2)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	50	5.0
Populus tremuloides	50	0.5
Tree d.b.h. < 5 inches		
Pinus contorta	50	3.0
Populus tremuloides	50	10.0
Shrubs		
Amelanchier alnifolia	50	3.0
Artemisia tridentata ssp. vaseyana	50	1.0
Berberis repens	100	6.5
Ceanothus velutinus	50	3.0
Prunus virginiana ssp. melanocarpa	50	3.0
Purshia tridentata	50	3.0
Spiraea betulifolia	100	3.0
Symphoricarpos albus	100	3.5
Symphoricarpos oreophilus	100	2.5
Graminoids		
Agropyron intermedium	50	0.5
Agropyron trachycaulum	50	1.0
Calamagrostis rubescens	100	0.7
Carex geyeri	50	50.0
Carex hoodii	50	0.5
Poa pratensis	50	1.0
Stipa occidentalis	50	1.0
Forbs		
Achillea millefolium	50	0.5
Apocynum androsaemifolium	50	3.0
Aster sp.	50	0.5
unknown Chenopodiaceae	50	0.5
Epilobium angustifolium	50	0.5
Fragaria virginiana	50	1.0
Geranium viscosissimum	100	1.0
Helianthella uniflora	50	3.0
Hieracium cynoglossoides	50	1.0
Hieracium sp.	50	0.5
Lupinus argenteus	50	1.0
Lupinus sp.	50	0.5
Machaeranthera canescens	50	3.0

Potentilla glandulosa	*100*	*0.7*
Solidago missouriensis	*50*	*1.0*

Soil
The soils of this ecological type are represented by the Potrmound series.

Taxonomic class: Loamy-skeletal, mixed Typic Cryumbrepts

Typical pedon description
Potrmound loam supporting a depauperate aspen-lodgepole pine/ whortleleaf snowberry community type woodland; on a 12 percent northeast facing slope; about 6060 feet elevation. (Colors are for dry soils unless otherwise noted).

A1– 0 to 16 inches; dark grayish brown (10YR 4/2) extremely stony loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine through coarse roots; many very fine irregular pores; 5 percent cobbles and 80 percent stones; moderately acid (pH 5.8); abrupt wavy boundary.

A2– 16 to 24 inches; brown (10YR 5/3) extremely stony loam, dark brown (7.5YR 3/2) moist; weak medium subangular blocky structure parting to week fine granular; soft, very friable, nonsticky and nonplastic; many very fine through coarse roots; common very fine irregular and many very fine tubular pores; 5 percent cobbles and 80 percent stones; slightly acid (pH 6.2); clear wavy boundary.

A3– 24 to 30 inches; brown (10YR 5/3) extremely stony loam, dark brown (7.5YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine through coarse roots; common very fine tubular pores; 5 percent pebbles and 80 percent stones; moderately acid (pH 5.8); clear wavy boundary.

Bw– 30 to 39 inches; pale brown (10YR 6/3) extremely stony loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine through medium roots; common very fine tubular pores; 5 percent pebbles and 80 percent stones; slightly acid (pH 6.2): abrupt irregular boundary.

R– 39 inches; hard basalt bedrock.

Typical pedon location
Legal description: approximately 12 miles northeast of Ashton, about 300 feet north and 200 feet east of the southwest corner of section 2, T. 10 N., R 43 E., ID.
Latitude: 44 degrees, 12 minutes, 58 seconds north.
Longitude: 111 degrees, 21 minutes, 27 seconds west.

Range in characteristics
Profile:
Depth class - moderately deep
Drainage class - well drained
Umbric epipedon thickness - 20 to 30 inches
Depth to hard bedrock - 20 to 40 inches
Percent clay in particle size control section - 10 to 14 percent
Rock fragments in particle size control section averages - 60 to 90 percent, mostly cobbles and stones
Reaction - moderately acid or slightly acid
Base saturation - 30 to 49 percent

A horizons:
Hue - 7.5YR or 10YR
Value - 4 or 5 dry, 2 or 3 moist
Chroma - 2 or 3 dry and moist

Bw horizons:
Hue - 7.5YR or 10YR
Value - 5 or 6 dry, 3 or 4 moist
Pebbles - 0 to 10
Cobbles - 0 to 45
Stones - 20 to 90

PSME/SYOR2 Pikaden, warm Ecological Type

This ecological type is named for the occurrence of Douglas-fir/whortleleaf snowberry habitat type on Pikaden, warm soils.

Environmental Setting
Landforms: mountains
Parent Material: colluvium derived from quartzite and loess
Slope range: 40 to 65 percent

Elevation: 7500 to 9800 feet
Average annual precipitation: 18 to 24 inches
Average annual temperature: 33 to 39 degrees F.
Temperature regime: cryic
Moisture regime: xeric

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Symphoricarpos oreophilus* habitat type.

Present communities: The Douglas-fir/whortleleaf snowberry h.t. is commonly supported.

Vegetation Composition (N=7)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Juniperus scopulorum	14	0.5
Pinus flexilis	28	5.2
Pseudotsuga menziesii	100	12.1
Tree d.b.h. < 5 inches		
Juniperus scopulorum	14	0.5
Pinus flexilis	28	1.2
Pseudotsuga menziesii	85	2.0
Shrubs		
Acer glabrum	14	0.5
Artemisia tridentata ssp. vaseyana	85	4.3
Cercocarpus ledifolius	14	0.5
Chamaebatiaria millefolium	14	0.5
Chimaphila umbellata	14	0.5
Chrysothamnus viscidiflorus	42	0.5
Juniperus communis	57	1.3
Ribes cereum	28	1.0
Ribes montigenum	14	0.5
Rosa sp.	14	0.5
Symphoricarpos oreophilus	100	1.9
Graminoids		
Agropyron sp.	14	0.5
Agropyron (Pseudoroegneria) spicatum	85	1.4
Carex rossii	14	0.5
Carex sp.	28	0.5
Festuca idahoensis	71	6.8
Hesperochloa kingii	85	0.5
Hordeum jubatum	28	0.5
Poa compressa	42	0.5
Poa cusickii	14	0.5
Poa nervosa	42	0.5
Poa nervosa var. wheeleri	14	0.5
Poa sandbergii	42	0.5
Poa sp.	14	0.5
Forbs		
Achillea millefolium	28	0.5
Antennaria microphylla	71	0.4
Arabis holboellii	14	0.5
Arabis sp.	57	0.4
Arnica cordifolia	14	0.5
unknown Caryophyllaceae	14	0.1
Castilleja sp.	14	0.5
Cirsium sp.	14	0.5
Collinsia parviflora	14	0.5
unknown Compositae	14	0.5
unknown Cruciferae	14	0.5
Delphinium nuttallianum	14	0.5
Delphinium occidentale	14	0.5
Erigeron compositus	28	0.5
Eriogonum umbellatum	14	0.5
Fritillaria atropurpurea	14	0.5
Geranium sp.	14	0.5
Heuchera sp.	14	0.5
unknown Liliaceae	14	0.5
Lupinus lepidus	14	0.5
Lupinus sp.	14	0.5
Orobanche sp.	14	0.5
Penstemon aridus	14	0.5
Penstemon sp.	28	0.5
Phlox longifolia	42	0.3
Phlox multiflora	14	0.5
Potentilla glandulosa	57	0.6
Sedum lanceolatum	28	0.3
Senecio canus	57	0.5
Senecio streptanthifolius var. brevifolius	14	0.5
Taraxacum officinale	28	0.5

Soil
The soils of this ecological type are represented by the Pikaden series.

Taxonomic class: Sandy-skeletal, mixed Typic Cryochrepts

Typical pedon description
Pikaden, warm extremely gravelly sandy loam; supporting a mountain big sagebrush/Idaho fescue community; on a 58 percent slope with a south aspect at 8400 feet elevation. (Colors are for dry soil unless otherwise noted.)

A--0 to 3 inches; dark grayish brown (10YR 4/2) extremely gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine irregular pores; 60 percent pebbles, 10 percent cobbles; neutral (pH 6.8); abrupt smooth boundary.

A2--3 to 9 inches; grayish brown (10YR 5/2) extremely gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; many very fine irregular pores; 60 percent pebbles, 10 percent cobbles, trace stones; neutral (pH 7.0); abrupt smooth boundary.

BC--9 to 17 inches; light brownish gray (10YR 6/2) extremely gravelly sandy loam, brown (7.5YR 4/2) moist; single grain; loose, nonsticky and nonplastic; many very fine and few fine roots; many very fine irregular pores; 50 percent pebbles, 10 percent flags, 10 percent cobbles, 10 percent stones; neutral (pH 6.8); gradual irregular boundary.

C1--17 to 30 inches; light gray (10YR 7/2) extremely stony loamy fine sand, brown (7.5YR 5/3) moist; single grain; loose, nonsticky and nonplastic; many very fine roots; many very fine irregular pores; 10 percent pebbles, 40 percent flags, 40 percent stones; neutral (pH 6.8); gradual irregualr boundary.

C2--30 to 60 inches; fragmental; single grain; loose, nonsticky and nonplastic; common very fine roots; many coarse irregular pores.

Typical pedon location
Legal description: about 750 feet south and 800 feet west of the northeast corner Section 1, T. 12 N., R. 31 E., ID.
Latitude: 44 degrees, 23 minutes, 29 seconds north.
Longitude: 112 degrees, 46 minutes, 19 seconds west.
Map Unit in which located: 1154

Range in characteristics
Profile:
Depth class - very deep
Drainage class - somewhat excessively drained
O horizon thickness - absent to 4 inches
Ochric epipedon thickness - 2 to 9 inches
Depth to base of cambic horizon - 10 to 20 inches
Depth to fragmental material - 25 to greater than 50 inches

A horizons
Hue - 7.5YR through 2.5Y
Value - 4 or 5 dry, 3 or 4 moist
Chroma - 2 or 3 dry or moist
Reaction - slightly acid or neutral

Bw horizon (when present)
Hue - 7.5YR or 10YR
Value - 5 or 6 dry, 4 or 5 moist
Chroma - 2 or 3 dry or moist
Texture, less than 2 mm fraction - sandy loam, loam or silt loam
Rock fragments - 70 to 90 percent
Reaction - moderately acid through neutral

BC horizon
Hue - 5YR through 10YR
Value - 6 or 7 dry, 5 or 6 moist
Chroma - 2 or 3 dry or moist
Texture, less than 2 mm fraction - loamy sand or sand
Rock fragments - 70 to 90 percent
Reaction - moderately acid through neutral

C horizon
Texture - extremely gravelly sand, extremely gravelly loamy sand, extremely stony loamy fine sand or fragmental

PSME/VAGL Huckridge Ecological Type

This ecological type is named for the occurrence of Douglas-fir/blue huckleberry habitat type on Huckridge soils.

This is a weakly defined ecological type. More documentation will be collected.

Environmental Setting
Landforms: dissected tablelands
Parent Material: local alluvium derived dominantly from loess
Slope range: 4 to 20 percent

Elevation: 5600 to 6700 feet
Average annual precipitation: 20 to 28 inches
Average annual temperature: 36 to 40 degrees F.
Temperature regime: cryic
Moisture regime: udic

Vegetation
The potential natural vegetation of this ecological type is *Pseudotsuga menziesii/Vaccinium globulare* habitat type.

Present communities: The Douglas-fir/blue huckleberry h.t., lodgepole pine/grouse whortleberry c.t. and lodgepole pine/blue huckleberry c.t. are present in some areas. The lodgepole pine/pinegrass and lodgepole pine/elk sedge c.t.s or communities dominated by lodgepole pine and non-native grasses are supported in plantations and regenerating clearcuts. Communities dominated by pinegrass, elk sedge or non-native grasses are supported in recent clearcut and scarified areas.

Vegetation Composition (N=7)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Abies lasiocarpa	28	5.2
Pinus contorta	71	15.8
Pseudotsuga menziesii	42	10.5
Tree d.b.h. < 5 inches		
Abies lasiocarpa	28	1.5
Pinus contorta	71	5.8
Populus tremuloides	14	0.5
Pseudotsuga menziesii	57	3.2
Shrubs		
Amelanchier alnifolia	71	1.8
Arctostaphylos uva-ursi	42	2.3
Berberis repens	28	0.7
Chimaphila umbellata	42	0.5
Lonicera utahensis	85	5.5
Rosa sp.	28	0.5
Salix spp.	14	5.0
Salix scouleriana	42	1.1
Shepherdia canadensis	42	0.9
Sorbus scopulina	57	0.5
Spiraea betulifolia	57	4.7
Symphoricarpos albus	42	7.0
Vaccinium globulare	57	13.6
Vaccinium scoparium	85	25.1
Graminoids		
Calamagrostis rubescens	85	20.5
Carex geyeri	57	6.2
Danthonia intermedia	14	2.0
Elymus glaucus	14	1.0
Phleum alpinum	14	0.1
Phleum pratense	14	0.5
Poa pratensis	14	0.5
Poa sp.	14	0.5
Forbs		
Achillea millefolium	14	1.0
Aquilegia sp.	14	0.1
Arnica cordifolia	28	3.7
Campanula rotundifolia	14	0.5
Epilobium angustifolium	85	2.3
Fragaria virginiana	14	0.5
Galium boreale	14	0.1
Geranium viscosissimum	42	1.0
Goodyera oblongifolia	14	0.5
Hieracium albiflorum	28	0.7
Hieracium cynoglossoides	14	0.5
Lupinus argenteus	71	1.8
Lupinus sp.	14	0.5
Machaeranthera canescens	14	3.0
Osmorhiza chilensis	28	0.3
Pedicularis racemosa	14	0.1
Pterospora andromedea	14	0.5
Pyrola secunda	28	0.3
Thalictrum occidentale	42	0.6

Soil
The soils of this ecological type are represented by the Huckridge series.

Taxonomic class: Fine-silty, mixed Typic Paleboralfs

Typical pedon description
Huckridge silt loam, supporting a lodgepole pine/grouse whortleberry community type; on a convex north slope of 10 percent; about 5910 feet elevation. (Colors are for dry soil unless otherwise noted.)

O—1/2 to 0 inches; forest litter of leaves, needles and stems; abrupt smooth boundary.

A—0 to 3 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; weak very fine granular and moderate very fine platy structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots, common medium roots; many very fine vesicular pores; moderately acid (pH 6.0); abrupt smooth boundary.

E—3 to 12 inches; pale brown (10YR 6/3) silt

loam, brown (10YR 4/3) moist; moderate coarse platy structure; hard, very friable, nonsticky and nonplastic; common very fine and fine roots, few medium roots; few very fine tubular pores; slightly acid (pH 6.1); clear smooth boundary.

E/B--12 to 26 inches; 95 percent very pale brown (10YR 7/3) E material, brown (10YR 5/3) moist and 5 percent brown (10YR 5/3) B material in very fine veins, brown (10YR 4/3) moist that mix to a silt loam; moderate very coarse subangular blocky structure; hard, very friable, nonsticky and slightly plastic; common very fine roots, few fine and medium roots; common to many very fine tubular pores; slightly acid (pH 6.1); gradual smooth boundary.

B/E--26 to 39 inches; 55 percent brown (10YR 5/3) B material, brown (10YR 4/3) moist and 45 percent very pale brown (10YR 8/3) E material, brown (10YR 4/3) moist that mix to a silt loam; moderate very coarse subangular blocky structure parting to strong coarse subangular blocky (B portion) and weak coarse subangular blocky (E portion); hard, very friable, slightly sticky and plastic (B portion) and slightly hard, very friable, nonsticky and nonplastic (E portion); common very fine roots, few fine and medium roots; many fine tubular pores, few very fine and medium tubular pores (B portion) and many very fine tubular pores, few fine tubular pores (E portion); many faint clay films on ped faces and lining pores of B material; moderately acid (pH 6.0); gradual smooth boundary.

Bt--39 to 58 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; strong very coarse subangular blocky structure; hard, friable, slightly sticky and plastic; few very fine and fine roots; many fine and few medium tubular pores; many faint clay films on ped faces and lining pores; common uncoated silt grains on ped faces; moderately acid (pH 6.0); diffuse smooth boundary.

BC--58 to 70 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; moderate very coarse subangular blocky structure; hard, friable, slightly sticky and plastic; few very fine and fine roots; many fine tubular pores, common very fine tubular pores and few medium tubular pores; few faint clay films lining pores; many uncoated silt grains on ped faces; moderately acid (pH 6.0).

Typical pedon location
Legal description: about 1900 feet north and 2450 feet east on the southwest corner section 35., T. 10 N., R. 44 E., ID.
Latitude: 44 degrees, 8 minutes, 50 seconds north.
Longitude: 11 degrees, 13 minutes, 25 seconds west.
Map Unit in which located: 1307

Range in characteristics
Profile:
Depth class - very deep
Drainage class - well drained
Depth to B/E horizons - 24 to 40 inches
Depth to BC horizon - 50 to greater than 60 inches
Pebbles and cobbles - 0 to 5 percent
Reaction - moderately acid to neutral (pH 5.6 to 7.3)

O horizon:
Occurrence and thickness - commonly 1/2 to 2 inches thick on lightly or undisturbed pedons and absent on pedons where recent, heavy mechanical disturbance has occurred

A or Ap horizons:
Value - 5 or 6 dry, 3 or 4 moist
Chroma - 2 or 3 dry and moist
Thickness - 2 to 7 inches

E horizon:
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 2 or 3 dry and moist
Texture - silt loam or silt

E/B horizon:
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 2 or 3 dry and moist
Other - Less than 1 to about 5 percent very fine veins or lamella, or both, of B material in a matrix of E material.

B/E horizons:
B portion -
Value - 5 or 6 dry, 4 or 5 moist
Chroma - 3 or 4 dry and moist
Volume - 50 to 85 percent
E portion -
Value - 7 or 8 dry, 4 or 5 moist
Chroma - 2 or 3 dry and moist
Volume - 15 to 50 percent
Other - The volume of E material commonly

decreases with depth.

Bt horizons:
Value - 5 or 6 dry, 4 or 5 moist
Chroma - 3 or 4 dry and moist
Texture - silt loam or silty clay loam

BC horizons:
Value - 6 or 7 dry, 4 or 5 moist
Chroma - 3 or 4 dry and moist
Rock fragments - 0 to 5 percent

Salix/Graminoid Chickreek Ecological Type

Incompletely defined at time of this printing.

Salix/Graminoid Chickreek, flooded Ecological Type

Incompletely defined at time of this printing.

Salix/Graminoid Cryaquolls Ecological Type

This ecological type is named for the occurrence of willow/grass or sedge dominated communities on Cryaquolls soils.

Environmental Setting
Landforms: floodplains
Parent Material: mixed alluvium
Slope range: 0 to 6 percent
Elevation: 5600 to 7800 feet
Average annual precipitation: 18 to 30 inches
Average annual temperature: 34 to 40 degrees F.
Temperature regime: cryic
Moisture regime: aquic

Vegetation
The potential natural vegetation of this ecological type is *Salix* spp./Graminoid dominated communities.

Present communities: The Booth's willow/fowl bluegrass c.t., Booth's willow/starry false Solomon's seal c.t., Geyer's willow/fowl bluegrass c.t., shrubby cinquefoil/Kentucky bluegrass community, and communities dominated by timothy, Kentucky bluegrass, Baltic rush, smallwing sedge, Columbia needlegrass, slender wheatgrass, other native or non-native grasses, mesic forbs or weedlike forbs are supported.

Vegetation Composition (N=13)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. < 5 inches		
Populus tremuloides	15	2.2
Pseudotsuga menziesii	7	0.5
Shrubs		
Alnus incana var. occidentalis	15	4.0
Artemisia tridentata ssp. vaseyana	15	0.7
Lonicera involucrata	38	0.5
Potentilla fruticosa	7	7.0
Ribes hudsonianum	15	0.7
Ribes lacustre	46	1.2
Rosa sp.	23	3.5
Rubus parviflorus	7	0.5
Salix bebbiana	7	2.0
Salix boothii	61	27.2
Salix drummondiana	30	14.7
Salix exigua	7	10.0
Salix geyerana	30	15.0
Salix wolfii	7	1.0
Symphoricarpos oreophilus	7	1.0
Tetradymia canescens	7	2.0
Graminoids		
Agropyron sp.	7	0.5
Agropyron trachycaulum	38	3.5
Bromus carinatus	23	2.0
Bromus ciliatus	23	0.6
Calamagrostis canadensis	30	5.6
Carex bebbi	7	0.5
Carex hoodii	15	0.7
Carex microptera	23	0.5
Carex pachystachya	7	0.5
Carex praticola	7	0.5
Carex raynoldsii	7	1.0
Carex sp.	38	10.3
Carex rossii	7	70.0
Carex vesicaria	7	5.0
Dactylis glomerata	7	0.5
Danthonia intermedia	7	0.5

Deschampsia cespitosa	15	1.2
Elymus glaucus	15	0.5
Festuca idahoensis	15	0.5
Juncus longistylis	7	0.5
Juncus sp.	15	10.2
Koeleria nitida (cristata) (macrantha)	7	0.5
Melica spectabilis	15	3.5
Phleum alpinum	30	0.5
Phleum pratense	76	9.3
Poa sp.	53	4.0
Poa ampla	7	0.5
Poa palustris	61	12.9
Poa pratensis	30	19.1
Stipa columbiana	7	15.0
Stipa occidentalis	7	0.5
Trisetum spicatum	15	0.7
Unknown grasses w/ >trace cover	7	25.0
Forbs		
Achillea millefolium	92	0.9
Actaea rubra	7	0.5
Agoseris glauca	23	0.5
Allium geyeri	7	0.5
Antennaria microphylla	15	0.7
Antennaria umbrinella	7	2.0
Arnica chamissonis	15	2.7
Arabis drummondii	7	0.5
Arabis glabra	7	0.5
Arabis sp.	15	0.5
Artemisia douglasiana	7	0.5
Aster foliaceus canbyi	46	3.3
Aster integrifolius	30	7.2
Astragalus miser	7	5.0
Aster occidentalis	7	0.5
Astragalus sp.	7	0.5
Calochortus eurycarpus	7	0.5
Castilleja miniata	46	2.0
unknown Chenopodiaceae	7	0.5
Cirsium arvense	7	2.0
Cirsium scariosum	15	0.5
Cirsium sp.	61	1.7
Clematis hirsutissima	7	0.5
Collomia linearis	7	3.0
unknown Compositae	7	0.5
Collinsia parviflora	7	0.5
unknown Cruciferae	23	0.5
Delphinium bicolor	7	2.0
Draba sp.	7	0.5
Epilobium angustifolium	38	0.5
Epilobium minutum	7	0.5
Epilobium sp.	46	0.5
Equisetum arvense	15	0.5
Equisetum sp.	7	0.5
Erigeron speciosus	7	0.5
Eriogonum umbellatum	7	0.5
Eriophyllum lanatum	7	0.5
Floerkea proserpinacoides	7	2.0
Fragaria vesca	7	0.5
Fragaria virginiana	61	13.8
Galium boreale	38	0.5
Galium triflorum	7	0.5
Geranium viscosissimum	61	4.0
Geum macrophyllum	15	0.7
Heracleum lanatum (maximum)	23	0.5
Hieracium sp.	7	0.5
Hydrophyllum capitatum	15	0.7
Iris missouriensis	7	5.0
Ligusticum filicinum	7	0.5
Lupinus argenteus	23	2.1
Mentha arvensis var. glabrata (canadensis)	7	0.5
Microsteris gracilis	7	0.5
Nemophila parviflora	7	1.0
Oenothera (Camissonia) subacaulis	7	0.5
Osmorhiza chilensis	7	0.5
Osmorhiza occidentalis	23	0.6
Pedicularis groenlandica	15	0.5
Penstemon procerus	7	2.0
Perideridia gairdneri	61	0.6
Plagiobothrys stipitatus	7	2.0
Potentilla glandulosa	53	0.7
Potentilla gracilis	61	2.4
Potentilla sp.	7	0.5
Prunella vulgaris	7	0.5
Rudbeckia occidentalis	30	0.5
Rumex paucifolius	7	1.0
Rumex salicifolius	7	0.5
Rumex sp.	15	0.5
Senecio integerrimus	23	10.6
Senecio serra	38	0.6
Senecio triangularis	7	0.5
Smilacina stellata	23	0.5
Solidago canadensis	30	3.5
Solidago sp.	7	0.5
Stellaria americana	15	0.5
Taraxacum officinale	84	1.3
Thalictrum fendleri	15	0.5
Thalictrum occidentale	46	0.5
Trifolium arvense	7	0.5
Tragopogon dubius	15	0.5
Trifolium longipes	7	2.0
Trifolium longipes ssp. reflexum	7	0.5
Urtica dioica	15	0.5
Valeriana occidentalis	30	0.5
Veronica sp.	7	10.0

Veronica wormskjoldii	7	0.5
Viola adunca	15	5.2
Viola nuttallii	7	0.5
Viola sp.	15	0.7
Wyethia amplexicaulis	23	0.5
Wyethia helianthoides	7	0.5
Wyethia sp.	7	0.5
Zigadenus venenosus	15	0.5
unknown forbs (may be more than one sp.)	7	1.0

Soils
The soils of this ecological type are represented by the Cryaquolls great group.

Taxonomic class: Cryaquolls

Typical pedon description
Cryaquolls, silt loam; supporting a Geyer Willow/fowl bluegrass community type, riparian area; on an undulating flood plain, 3 percent slope; about 6720 feet elevation. When described on October 21, 1993 the water table was at 15 inches. (Colors are for dry soil unless otherwise noted.)

A--0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, black (10YR 2/1) moist; strong fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine, few medium and coarse roots; many very fine irregular pores; few fine prominent (5YR 4/6) Fe accumulations on ped faces; trace pebbles; neutral (pH 6.6); abrupt smooth boundary.

Bt1--5 to 11 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; strong fine subangular blocky structure; hard, friable, slightly sticky and plastic; common very fine and few fine roots; common very fine and fine tubular pores; few fine prominent (5YR 4/6) Fe accumulations on ped faces, lining pores and root channels; 5 percent pebbles; neutral (pH 6.8); abrupt smooth boundary.

Bt2--11 to 17 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure parting to moderate fine subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular pores; common fine prominent (7.5YR 4\4-6) Fe accumulations on ped faces, lining pores and root channels; 5 percent pebbles; neutral (pH 6.8); abrupt smooth boundary.

BC--17 to 24 inches; grayish brown (10YR 5/2) loam, dark gray (10YR 4/1) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and common fine tubular pores; common fine prominent (7.5YR 4/4) Fe accumulations lining pores and root channels; 5 percent pebbles; neutral (pH 7.0); abrupt smooth boundary.

C1--24 to 34 inches; light gray (2.5Y 7/2) stratified fine sandy loam and very fine sandy loam, gray (5Y 5/1) moist; massive; slightly hard, very friable, nonsticky and slightly plastic; few very fine roots; many very fine and few fine tubular pores; few fine prominent (10YR 5/6) Fe accumulations lining pores, few fine distinct (2.5Y 2/0) soft Mn accumulations in matrix; 5 percent pebbles, trace cobbles; neutral (pH 7.3); clear smooth boundary.

2C2--34 to 60 inches; variegated, stratified extremely gravelly sandy loam to extremely gravelly loamy sand; single grain; loose, nonsticky and nonplastic; many very fine irregular pores; 60 percent pebbles, 10 percent cobbles; neutral (pH 7.3).

Typical pedon location
Legal description: about 1900 feet west and 1300 feet north of the southeast corner of section 19, T. 13 N., R. 36 E., ID.
Latitude: 44 degrees, 26 minutes, 8 seconds north.
Longitude: 112 degrees, 15 minutes, 55 seconds west.
Map unit in which located: 2606

Range in characteristics
Profile:
Depth class - very deep
Drainage class - somewhat poorly drained
Water table, depth - + 6 to 18 inches
Water table, kind - apparent
Water table, duration - spring and early summer
Depth to redox concentrations - 2 to 18 inches
Thickness of mollic epipedon - 7 to 30 inches
Depth of solum - 15 to 40 inches
Depth to lithologic discontinuity - 15 to greater than 60 inches

Reaction - slightly acid to neutral
Other - An Oe horizon, 1 to 8 inches thick is present on some pedons.

A horizons:
Hue - 7.5YR or 10YR
Value - 3 or 4 dry, 2 or 3 moist
Chroma - 1 or 2 dry or moist
Texture - silt loam or loam
Clay - 7 to 27 percent
Pebbles - 0 to 15 percent

B horizons:
Hue - 7.5YR to 2.5Y
Value - 4 or 5 dry, 3 or 4 moist
Chroma - 1 or 2 dry or moist
Redox concentrations, hue - 5YR to 5Y
Value - 2 or 4 dry or moist
Chroma - 0 to 6 dry or moist
Texture - silt loam, silty clay loam, or loam
Clay - 15 to 30 percent
Pebbles - 0 to 15 percent
Other - horizon is absent in some pedons

C horizons:
Hue - 10YR to 5Y
Value - 5 to 7 dry, 4 to 6 moist
Chroma - 1 or 2 dry or moist
Redox concentrations, hue - 5YR to 5Y
Value - 2 to 4 dry or moist
Chroma - 0 to 6 dry or moist
Texture - stratified silt loam, loam, very fine sandy loam, fine sandy loam, sandy loam or gravelly sandy loam
Clay - 4 to 20 percent
Pebbles - 0 to 25 percent

2C horizons:
Texture - stratified very gravelly loam, very gravelly sandy loam, extremely gravelly sandy loam, extremely gravelly loamy sand, extremely gravelly sand, extremely cobbly sandy loam, extremely cobbly loamy sand, extremely cobbly loamy coarse sand, extremely cobbly sand or extremely cobbly coarse sand
Clay - 1 to 12 percent
Rock fragments - 35 to 90 percent

Salix/Graminoid Cryaquolls, poorly drained Ecological Type

This ecological type is named for the occurrence of willow/grass or sedge dominated communities on Cryaquolls, poorly drained soils.

Environmental Setting

Landforms: floodplains
Parent Material: mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5600 to 7800 feet
Average annual precipitation: 18 to 30 inches
Average annual temperature: 34 to 40 degrees F.
Temperature regime: cryic
Moisture regime: aquic

Vegetation

The potential natural vegetation of this ecological type is *Salix* spp./graminoid dominated communities.

Present communities: The Booth's willow/bluejoint c.t., Booth's willow/beaked sedge c.t., Geyer's willow/bluejoint c.t., Geyer's willow/beaked sedge c.t. and communities dominated by bluejoint, beaked sedge or other riparian sedges are supported.

Vegetation Composition (N=7)

Scientific name	Constancy %	Mean %Cover
Tree d.b.h. > 5 inches		
Pinus contorta	14	1.0
Tree d.b.h. < 5 inches		
Pinus contorta	14	1.0
Populus tremuloides	28	1.2
Shrubs		
Lonicera involucrata	28	0.5
Ribes sp.	14	2.0
Ribes lacustre	42	1.0
Rubus sp.	14	0.5
Salix boothii	42	31.6
Salix drummondiana	14	10.0
Salix exigua	28	10.0
Salix geyerana	57	25.2
Salix lemmonii	14	25.0
Graminoids		
Agrostis sp.	14	0.5
Alopecurus aequalis	28	1.2
Bromus carinatus	14	3.0
Bromus ciliatus	14	0.5
Bromus sp.	14	5.0

Calamagrostis canadensis	71	44.6
Carex aquatilis	14	20.0
Carex leporinella	14	20.0
Carex microptera	42	4.5
Carex nebrascensis	14	1.0
Carex sp.	42	1.3
Carex rostrata	57	32.5
Carex vesicaria	14	3.0
Deschampsia cespitosa	14	0.5
Elymus glaucus	28	6.0
Hordeum brachyantherum	14	0.5
Juncus balticus	14	1.0
Juncus sp.	28	2.7
Phleum alpinum	28	4.2
Phleum pratense	28	4.0
Poa palustris	42	6.0
Poa pratensis	14	10.0
Trisetum spicatum	14	0.5
Unknown grasses w/ >trace cover	14	5.0
Forbs		
Aconitum columbianum	28	3.5
Achillea millefolium	28	0.5
Arabis sp.	14	0.5
Arnica chamissonis	14	2.0
Aster foliaceus canbyi	28	1.2
Aster sp.	14	5.0
unknown Caryophyllaceae	14	0.5
Castilleja miniata	14	0.5
Cirsium arvense	14	15.0
Cirsium sp.	14	1.0
unknown Compositae	57	4.7
unknown Cruciferae	14	0.5
Delphinium occidentale	14	0.5
Epilobium angustifolium	42	0.5
Epilobium sp.	57	0.7
Fragaria virginiana	28	10.2
Galium boreale	14	1.0
Galium sp.	28	1.2
Galium triflorum	14	0.5
Geum macrophyllum	14	0.5
Geranium sp.	14	1.0
Geranium viscosissimum	28	0.5
Heracleum lanatum (maximum)	42	7.6
Helianthella uniflora	14	0.5
Potentilla glandulosa	42	0.5
Potentilla gracilis	14	2.0
Prunella vulgaris	28	0.5
Ranunculus uncinatus	14	0.5
Rudbeckia occidentalis	42	3.6
Senecio serra	14	2.0
Taraxacum officinale	14	0.5
Thalictrum occidentale	14	0.5
unknown forbs w/ > trace cover	28	5.5
Urtica dioica	42	1.8
Veronica serpyllifolia	14	0.5
Viola adunca	14	0.5

Soil

The soils of this ecological type are represented by the Cryaquolls great group, poorly drained phase.

Taxonomic class: Cryaquolls

Typical pedon description

Cryaquolls, poorly drained silt loam; supporting a Geyer Willow/bluejoint reedgrass community type, riparian area; on an undulating flood plain, 1 percent slope; about 6620 feet elevation. When described on August 8, 1993 the water table was at 20 inches. (Colors are for dry soil unless otherwise noted.)

A1--0 to 4 inches; silt loam, black (10YR 2/1) moist; weak coarse subangular blocky structure parting to moderate medium subangular blocky; friable, slightly sticky and slightly plastic; many very fine and common fine roots; few very fine tubular pores; slightly acid (pH 6.4); abrupt smooth boundary.

A2--4 to 13 inches; loam, black (5Y 2.5/1) moist; weak coarse subangular blocky structure parting to moderate fine subangular blocky; friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; few fine prominent (10YR 3/3) moist Fe accumulations on ped faces, lining pores and root channels; neutral (pH 7.2); abrupt smooth boundary.

Bg--13 to 20 inches; silt loam, very dark gray (5Y 3/1) moist; weak coarse subangular blocky structure; friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine and fine tubular pores; few fine prominent (5Y 5/3-4) moist Fe accumulations on ped faces, lining pores and root channels; neutral (pH 7.0); clear smooth boundary.

Cg--20 to 45 inches; stratified sandy loam to silt loam, olive gray (5Y 5/2) moist; massive; very friable, slightly sticky and slightly plastic; few very fine and common fine roots; few very fine tubular pores; common fine and medium prominent (5G 5-6/2) moist Fe depletions along root channels;

many fine and medium prominent (2.5Y 5-6/6-8) moist Fe accumulations in matrix; neutral (pH 6.8); abrupt smooth boundary.

C--45 to 55 inches; sandy loam, olive gray (5Y 5/2) moist; massive; very friable, nonsticky and nonplastic; few fine roots; many very fine irregular pores; neutral (pH 7.0); abrupt smooth boundary.

Cg'--55 to 60 inches; very fine sandy loam, olive gray (5Y 5/2) moist; massive; very friable, slightly sticky and slightly plastic; few fine roots; few finetubular pores; few fine prominent (5G 6/2)moist Fe depletions aqlong rock fragments; many fine distinct (5Y 6/3) moist Fe accumulations in matrix; neutral (pH 6.8).

Typical pedon location
Legal description: about 1600 feet east and 1200 feet south of the northwest corner of section 8, T. 13 N., R. 38 E., ID.
Latitude: 44 degrees, 28 minutes, 17 seconds north.
Longitude: 112 degrees, 0 minutes, 50 seconds west.
Map unit in which located: 2606

Range in characteristics
Profile:
Depth class - very deep
Drainage class - poorly drained
Water table, depth - + 6 to 6 inches
Water table, kind - apparent
Water table, duration - spring and early summer
Depth to redox concentrations - 2 to 18 inches
Thickness of mollic epipedon - 7 to 30 inches
Depth of solum - 15 to 40 inches
Depth to lithologic discontinuity - 15 to greater than 60 inches
Reaction - slightly acid to neutral
Other - An Oe horizon, 1 to 8 inches thick is present on some pedons.

A horizons:
Hue - 7.5YR or 10YR
Value - 3 or 4 dry, 2 or 3 moist
Chroma - 1 or 2 dry or moist
Texture - silt loam or loam
Clay - 7 to 27 percent
Pebbles - 0 to 15 percent

B horizons:
Hue - 7.5YR to 2.5Y
Value - 4 or 5 dry, 3 or 4 moist
Chroma - 1 or 2 dry or moist
Redox concentrations, hue - 5YR to 5Y
Value - 2 or 4 dry or moist
Chroma - 0 to 6 dry or moist
Texture - silt loam, silty clay loam, or loam
Clay - 15 to 30 percent
Pebbles - 0 to 15 percent
Other - horizon is absent in some pedons

C horizons:
Hue - 10YR to 5Y
Value - 5 to 7 dry, 4 to 6 moist
Chroma - 1 or 2 dry or moist
Redox concentrations, hue - 5YR to 5Y
Value - 2 to 4 dry or moist
Chroma - 0 to 6 dry or moist
Texture - stratified silt loam, loam, very fine sandy loam, fine sandy loam, sandy loam or gravelly sandy loam
Clay - 4 to 20 percent
Pebbles - 0 to 25 percent

2C horizons:
Texture - stratified very gravelly loam, very gravelly sandy loam, extremely gravelly sandy loam, extremely gravelly loamy sand, extremely gravelly sand, extremely cobbly sandy loam, extremely cobbly loamy sand, extremely cobbly loamy coarse sand, extremely cobbly sand or extremely cobbly coarse sand
Clay - 1 to 12 percent
Rock fragments - 35 to 90 percent

Salix/Graminoid Tepete Ecological Type

This ecological type is named for the occurrence of willow/grass or sedge dominated communities on Tepete soils.

Environmental Setting
Landforms: outwash plains
Parent Material: decomposed plant materials over mixed alluvium
Slope range: 0 to 1 percent
Elevation: 6300 to 6600 feet
Average annual precipitation: 20 to 36 inches
Average annual temperature: 36 to 38 degrees F.
Temperature regime: cryic
Moisture regime: aquic

Vegetation
The potential natural vegetation of this ecological type is *Salix* spp./Graminoid dominated communities.

Present communities: Communities dominated by various willows and riparian sedges are commonly supported.

Vegetation Composition (N=3)

Scientific name	Constancy %	Mean %Cover
Shrubs		
Betula glandulosa	66	20.0
Salix boothii	33	2.0
Salix exigua	66	0.5
Salix geyerana	33	10.0
Salix spp.	33	35.0
Salix wolfii	33	1.0
Graminoids		
Agropyron dasystachyum	33	0.1
Bromus ciliatus	33	0.5
Calamagrostis canadensis	100	1.3
Carex aquatilis	33	3.0
Carex nebrascensis	33	0.5
Carex rostrata	33	70.0
Carex sp.	66	21.5
Deschampsia cespitosa	66	4.0
Juncus balticus	33	5.0
Juncus confusus	33	5.0
Poa palustris	66	0.5
Forbs		
Achillea millefolium	33	0.5
Aster occidentalis	33	0.5
Astragalus sp.	33	0.1
Calypso bulbosa	66	0.5
unknown Caryophyllaceae	33	0.1
Epilobium angustifolium	33	0.5
Epilobium sp.	33	0.1
Fragaria vesca	33	0.5
Gentiana sp.	66	0.3
Potentilla glandulosa	66	0.5
Solidago canadensis	33	0.5

Soil
The soils of this ecological type are represented by the Tepete series.

Taxonomic class: Loamy, mixed, euic Terric Borohemists

Typical pedon description
Tepete peat, wet meadow; on a 1 percent slope; about 6380 feet elevation. (Colors are for dry soil unless otherwise noted.)

0e1–0 to 5 inches; very dark gray (10 YR 3/1) peat, slightly to moderately decomposed hemic material, black (10YR 2/1) moist and rubbed; about 60 percent fiber after rubbing; massive, herbaceous fiber; strongly acid (pH 5.4); clear smooth boundary.

0e2–5 to 14 inches; very dark grayish brown (10YR 3/2) peat, moderately decomposed hemic material, very dark brown (10YR 2/2) moist and rubbed; about 30 percent fiber after rubbing; massive, herbaceous fiber; strongly acid (pH 5.4); clear smooth boundary.

0e3–14 to 28 inches; very dark grayish brown (10YR 3/2) peat, moderately decomposed hemic material, very dark brown (10YR 2/2) moist and rubbed; about 20 percent fiber after rubbing; massive, herbaceous fiber; moderately acid (pH 5.6); clear smooth boundary.

A–28 to 40 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (2.5Y 3/2) moist; common large yellowish brown (10YR 5/6) moist redox concentrations; single grain, loose, nonsticky and nonplastic; common very fine and fine roots; many very fine irregular pores; moderately acid (pH 5.8); gradual smooth boundary.

2C1–40 to 62 inches; variegated coarse sand; single grain, loose, nonsticky and nonplastic; few very fine roots; many fine irregular pores; neutral (pH 6.6); gradual smooth boundary.

2C2–62 to 70 inches; variegated very gravelly coarse sand; single grain, loose, nonsticky and nonplastic; many fine irregular pores; 60 percent pebbles; neutral (pH 6.6).

Typical pedon location
Legal description: about 1500 feet south and 300 feet east of the northwest corner of sec. 31, T.14N., R.44E., ID.
Latitude: 44 degrees, 29 minutes, 30 seconds north.
Longitude: 111 degrees, 18 minutes, 50 seconds west.
Map unit in which located: 2020

Range in characteristics
Profile:

Depth class - very deep
Drainage class - very poorly drained
Depth to sand and gravel 40 inches or greater
Water table, depth - + 6 to 18 inches
Water table, kind - apparent
Water table, duration - all year
Mineral horizons - consist of moderately fine to moderately coarse stratified alluvium

O horizons:
Thickness - 16 to 34 inches
Hue - 10YR to 5Y
Value - 1 to 3 dry and moist
Chroma - 1 or 2 dry and moist
Reaction - strongly acid or moderately acid

A horizons:
Hue - 10YR to 5Y
Value - 4 or 5 dry, 3 or 4 moist
Chroma - 1 or 2 dry and moist
Reaction - moderately acid or slightly acid

2C horizons:
Hue - 10YR to 5Y or variegated
Rock fragments - 0 to 65 percent
Reaction - slightly acid or neutral

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND SCIENTIFIC NAME

LIFEFORM	SCIENTIFIC NAME	COMMON NAME	CODE
	Fern	fern	FERN
T	Abies lasiocarpa	subalpine fir	ABLA
T	Juniperus occidentalis	western juniper	JUOC
T	Juniperus osteosperma	Utah juniper	JUOS
T	Juniperus scopulorum	Rocky Mountain juniper	JUSC2
T	Juniperus sp.	juniper	JUNIP
T	Picea engelmannii	Engelmann's spruce	PIEN
T	Pinus albicaulis	whitebark pine	PIAL
T	Pinus contorta	lodgepole pine	PICO
T	Pinus flexilis	limber pine	PIFL2
T	Populus tremuloides	quaking aspen	POTR5
T	Pseudotsuga menziesii	Douglas-fir	PSME
S	Acer (saccharum) grandidentatum	bigtooth maple	ACGR
S	Acer glabrum	Rocky Mountain maple	ACGL
S	Acer macrophyllum	bigleaf maple	ACMA3
S	Alnus incana var. occidentalis	western river alder	ALINO
S	Amelanchier alnifolia	Saskatoon serviceberry	AMAL2
S	Arctostaphylos uva-ursi	bearberry	ARUV
S	Artemisia arbuscula ssp. arbuscula	gray low sagebrush	ARARA
S	Artemisia arbuscula ssp. longiloba	alkali sagebrush	ARARL
S	Artemisia cana ssp. bolanderi	Bolander's silver sagebrush	ARCAB3
S	Artemisia cana ssp. viscidula	Coaltown sagebrush	ARCAV
S	Artemisia frigida	fringed sagebrush	ARFR4
S	Artemisia nova	black sagebrush	ARNO4
S	Artemisia rigida	stiff sagebrush	ARRI2
S	Artemisia tridentata ssp. spiciform	big sagebrush	ARTRS2
S	Artemisia tridentata ssp. tridentat	basin big sagebrush	ARTRT
S	Artemisia tridentata ssp. vaseyana	mountain big sagebrush	ARTRV
S	Artemisia tridentata ssp. wyomingen	Wyoming big sagebrush	ARTR[illegible]3
S	Artemisia tripartita	threetip sagebrush	ARTR[illegible]4
S	Berberis repens	Oregongrape	BERE
S	Betula glandulosa	bog birch	BEGL
S	Ceanothus velutinus	snowbrush ceanothus	CEVE
S	Cercocarpus ledifolius	curlleaf mountain mahogany	CELE3
S	Chamaebatiaria millefolium	fernbush	CHMI2
S	Chimaphila umbellata	common princes pine (pipsissewa)	CHUM
S	Chrysothamnus nauseosus	rubber rabbitbrush	CHNA2
S	Chrysothamnus sp.	rabbitbrush	CHRYS
S	Chrysothamnus viscidiflorus	green rabbitbrush	CHVI8
S	Clematis columbiana	rock clematis	CLCO2
S	Cornus stolonifera	redosier dogwood	COST4
S	Crataegus douglasii	black hawthorn	CRDO2
S	Dryas octopetala ssp. hookeriana	Hooker's mountainavens	DROCH
S	Eurotia lanata	winterfat	EULA5
S	Haplopappus suffruticosus	narrowleaf goldenweed	HASU
S	Juniperus communis	common juniper	JUCO6
S	Lonicera involucrata	twinberry honeysuckle	LOIN5
S	Lonicera utahensis	Utah honeysuckle	LOUT2
S	Pachistima myrsinites	myrtle pachystima	PAMY
S	Physocarpus malvaceus	mallow ninebark	PHMA5
S	Potentilla fruticosa	shrubby cinquefoil	POFR4
S	Prunus virginiana ssp. melanocarpa	black chokecherry	PRVIM
S	Purshia tridentata	antelope bitterbrush	PUTR2
S	Ribes cereum	wax current	RICE
S	Ribes hudsonianum	northern black currant	RIHU
S	Ribes inerme	whitestem gooseberry	RIIN2
S	Ribes lacustre	prickly currant	RILA
S	Ribes montigenum	gooseberry currant	RIMO2
S	Ribes sp.	currant	RIBES
S	Ribes viscosissimum	sticky currant	RIVI3
S	Rosa acicularis	prickly rose	ROAC
S	Rosa gymnocarpa	dwarf rose	ROGY
S	Rosa sp.	rose	ROSA
S	Rosa woodsii	Wood's rose	ROWO
S	Rubus idaeus (ssp. sachalinensis) g	grayleaf red raspberry	RUIDS
S	Rubus parviflorus	thimbleberry	RUPA
S	Rubus sp.	blackberry	RUBUS
S	Salix bebbiana	Bebb willow	SABE2

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND SCIENTIFIC NAME

LIFEFORM	SCIENTIFIC NAME	COMMON NAME	CODE
S	Salix boothii	Booth's willow	SABO2
S	Salix drummondiana	Drummond's willow	SADR
S	Salix exigua	sandbar willow	SAEX
S	Salix geyerana	Geyer's willow	SAGE2
S	Salix lemmonii	Lemmon's willow	SALE
S	Salix lutea	yellow willow	SALU2
S	Salix nivalis (reticulata ssp. niva	snow willow	SANI3
S	Salix scouleriana	Scouler's willow	SASC
S	Salix spp.	willow	SALIX
S	Salix wolfii	Wolf's willow	SAWO
S	Sambucus racemosa	scarlet elderberry	SARA2
S	Shepherdia canadensis	russet buffaloberry	SHCA
S	Sorbus scopulina	Greene mountainash	SOSC2
S	Spiraea betulifolia	white spirea	SPBE2
S	Symphoricarpos albus	common snowberry	SYAL
S	Symphoricarpos oreophilus	whortleleaf snowberry	SYOR2
S	Symphoricarpos sp.	snowberry	SYMPH
S	Tetradymia canescens	spineless horsebrush	TECA2
S	Vaccinium caespitosum	dwarf blueberry	VACA
S	Vaccinium globulare	blue huckleberry	VAGL
S	Vaccinium scoparium	grouse whortleberry	VASC
M	Mosses	mosses	MOSSES
L	LICHEN	LICHEN	LICHEN
G	Agropyron (Pascopyrum) smithii	western wheatgrass	AGSM
G	Agropyron (Pseudoroegneria) spicatu	bluebunch wheatgrass	AGSP
G	Agropyron (Pseudoroegneria) spicatu	beardless wheatgrass	AGSPI
G	Agropyron albicans	Montana wheatgrass	AGAL
G	Agropyron cristatum	crested wheatgrass	AGCR
G	Agropyron dasystachyum	thickspike wheatgrass	AGDA
G	Agropyron intermedium	intermediate wheatgrass	AGIN2
G	Agropyron repens	quackgrass	AGRE2
G	Agropyron scribneri	spreading wheatgrass	AGSC4
G	Agropyron sp.	wheatgrass	AGROP
G	Agropyron trachycaulum	slender wheatgrass	AGTR
G	Agrostis exarata	spike bentgrass	AGEX
G	Agrostis scabra	rough bentgrass	AGSC5
G	Agrostis sp.	bentgrass	AGROS
G	Agrostis stolonifera	creeping bentgrass (redtop)	AGST2
G	Alopecurus aequalis	shortawn foxtail	ALAE
G	Alopecurus sp.	foxtail	ALOPE
G	Aristida longiseta	Fendler threeawn	ARLO3
G	Bromus anomalus	nodding brome	BRAN
G	Bromus carinatus	California brome	BRCA5
G	Bromus ciliatus	fringed brome	BRCI2
G	Bromus inermis	smooth brome	BRIN2
G	Bromus sp.	brome	BROMU
G	Bromus tectorum	cheatgrass	BRTE
G	Calamagrostis canadensis	bluejoint	CACA4
G	Calamagrostis purpurascens	purple reedgrass	CAPU
G	Calamagrostis rubescens	pinegrass	CARU
G	Carex aquatilis	water sedge	CAAQ
G	Carex bebbi	Bebb's sedge	CABE2
G	Carex disperma	softleaf sedge	CADI6
G	Carex douglasii	Douglas' sedge	CADO2
G	Carex elynoides	blackroot sedge	CAEL3
G	Carex filifolia	threadleaf sedge	CAFI
G	Carex geyeri	elk sedge	CAGE2
G	Carex hoodii	Hood's sedge	CAHO5
G	Carex leporinella	Sierran hare sedge	CALE9
G	Carex microptera	smallwing sedge	CAMI7
G	Carex nebrascensis	Nebraska sedge	CANE2
G	Carex norvegica	Norway sedge	CANO2
G	Carex pachystachya	chamisso sedge	CAPA14
G	Carex paysonis	Payson's sedge	CAPA31
G	Carex petasata	Liddon sedge	CAPE7
G	Carex praticola	meadow sedge	CAPR7
G	Carex raynoldsii	Raynolds' sedge	CARA6
G	Carex rossii	Ross' sedge	CARO5
G	Carex rostrata	beaked sedge	CARO6

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND SCIENTIFIC NAME

LIFEFORM	SCIENTIFIC NAME	COMMON NAME	CODE
G	Carex rupestris	rock sedge	CARU3
G	Carex sp.	sedge	CAREX
G	Carex vallicola	valley sedge	CAVA3
G	Carex vesicaria	blister sedge	CAVE6
G	Dactylis glomerata	orchardgrass	DAGL
G	Danthonia intermedia	timber oatgrass	DAIN
G	Danthonia sp.	oatgrass	DANTH
G	Danthonia unispicata	onespike danthonia	DAUN
G	Deschampsia cespitosa	tufted hairgrass	DECE
G	Elymus cinereus	basin wildrye	ELCI2
G	Elymus glaucus	blue wildrye	ELGL
G	Elymus sp.	wildrye	ELYMU
G	Festuca idahoensis	Idaho fescue	FEID
G	Festuca ovina	sheep fescue	FEOV
G	Festuca scabrella	rough fescue	FESC
G	Festuca sp.	fescue	FESTU
G	Glyceria sp.	mannagrass	GLYCE
G	Hesperchloa (Leucopoa) kingii	spike fescue	LEKI2
G	Hesperochloa kingii	spike fescue	HEKI
G	Hordeum brachyantherum	meadow barley	HOBR2
G	Hordeum jubatum	foxtail barley	HOJU
G	Juncus balticus	Baltic rush	JUBA
G	Juncus confusus	Colorado rush	JUCO2
G	Juncus ensifolius	swordleaf rush	JUEN
G	Juncus longistylis	longstyle rush	JULO
G	Juncus sp.	rush	JUNCU
G	Koeleria nitida (cristata) (macrant	prairie Junegrass	KOCR
G	Luzula parviflora	smallflowered woodrush	LUPA4
G	Melica bulbosa	oniongrass	MEBU
G	Melica sp.	oniongrass	MELIC
G	Melica spectabilis	purple oniongrass	MESP
G	Melica subulata	alaska oniongrass	MESU
G	Oryzopsis hymenoides	Indian ricegrass	ORHY
G	Oryzopsis sp.	ricegrass	ORYZO
G	Phleum alpinum	alpine timothy	PHAL2
G	Phleum pratense	timothy	PHPR3
G	Poa (cusickii) epilis	skyline bluegrass	POCUE
G	Poa alpina	alpine bluegrass	POAL2
G	Poa ampla	big bluegrass	POAM
G	Poa arida	plains bluegrass	POAR3
G	Poa compressa	Canada bluegrass	POCO
G	Poa cusickii	Cusick's bluegrass	POCU3
G	Poa fendleriana	mutton bluegrass	POFE
G	Poa interior	inland bluegrass	POIN
G	Poa leibergii	leiberg bluegrass	POLE
G	Poa leptocoma	bog bluegrass	POLE2
G	Poa nervosa	nerved bluegrass	PONE2
G	Poa nervosa var. wheeleri	Wheeler bluegrass	PONEW
G	Poa nevadensis	Nevada bluegrass	PONE3
G	Poa palustris	fowl bluegrass	POPA2
G	Poa pratensis	Kentucky bluegrass	POPR
G	Poa reflexa	nodding bluegrass	PORE
G	Poa rupicola	timberline bluegrass	PORU10
G	Poa sandbergii	Sandberg bluegrass	POSA12
G	Poa scabrella	pine bluegrass	POSC
G	Poa secunda	Sandberg bluegrass	POSE
G	Poa sp.	bluegrass	POA
G	Sitanion hystrix	bottlebrush squirreltail	SIHY
G	Stipa columbiana	Columbia needlegrass	STCO3
G	Stipa comata	needleandthread	STCO4
G	Stipa lettermanii	Letterman's needlegrass	STLE4
G	Stipa occidentalis	western needlegrass	STOC2
G	Stipa pinetorum	pine needlegrass	STPI2
G	Stipa sp.	needlegrass	STIPA
G	Trisetum spicatum	spike trisetum	TRSP2
G	Trisetum wolfii	Wolf's trisetum	TRWO3
G	unknown grasses w/ > trace cover		UNKGRA
F	Achillea millefolium	common yarrow	ACMI2
F	Aconitum columbianum	Columbia monkshood	ACCO4

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND SCIENTIFIC NAME

LIFEFORM	SCIENTIFIC NAME	COMMON NAME	CODE
F	Actaea rubra	red baneberry	ACRU2
F	Agastache cusickii	Cusick's giant hyssop	AGCU
F	Agastache urticifolia	nettleleaf giant hyssop	AGUR
F	Agoseris aurantiaca	orange agoseris	AGAU2
F	Agoseris glauca	pale agoseris	AGGL
F	Agoseris sp.	agoseris	AGOSE
F	Allium acuminatum	tapertip onion	ALAC4
F	Allium cernuum	nodding onion	ALCE2
F	Allium geyeri	Geyer onion	ALGE
F	Allium sp.	wild onion	ALLIU
F	Anaphalis margaritacea	western pearlyeverlasting	ANMA
F	Androsace septentrionalis	pygmyflower rockjasmine	ANSE4
F	Anelsonia eurycarpa	dagger pod	ANEU
F	Anemone (Pulsatilla) occidentalis	white pasqueflower	ANOC6
F	Anemone multifida	Pacific anemone	ANMU
F	Anemone parviflora	smallflowered anemone	ANPA
F	Angelica arguta	Lyall's angelica	ANAR3
F	Angelica roseanna	rose angelica	ANRO
F	Antennaria alpina var. media	alpine pussytoes	ANAL4
F	Antennaria arcuata	box pussytoes	ANAR4
F	Antennaria corymbosa	flattop pussytoes	ANCO
F	Antennaria dimorpha	low pussytoes	ANDI2
F	Antennaria lanata	woolly pussytoes	ANLA3
F	Antennaria luzuloides	rush pussytoes	ANLU2
F	Antennaria microphylla	littleaf pussytoes	ANMI3
F	Antennaria parvifolia	smalleaf pussytoes	ANPA5
F	Antennaria racemosa	raceme pussytoes	ANRA
F	Antennaria sp.	pussytoes	ANTEN
F	Antennaria umbrinella	umber pussytoes	ANUM
F	Apocynum androsaemifolium	spreading dogbane	APAN2
F	Aquilegia coerulea	Colorado blue columbine	AQCO
F	Aquilegia flavescens	yellow columbine	AQFL
F	Aquilegia formosa	western columbine	AQFO
F	Aquilegia sp.	columbine	AQUIL
F	Arabis drummondii	Drummond's rockcress	ARDR
F	Arabis glabra	tower rockcress	ARGL
F	Arabis holboellii	Holboell's rockcress	ARHO2
F	Arabis lemmonii	Lemmon's rockcress	ARLE
F	Arabis nuttallii	Nuttall's rockcress	ARNU
F	Arabis sp.	rockcress	ARABI2
F	Arenaria (Minuartia) nuttallii	Nuttall's sandwort	MINU4
F	Arenaria congesta	ballhead sandwort	ARCO5
F	Arenaria kingii	King's sandwort	ARKI
F	Arenaria sp.	sandwort	ARENA
F	Arnica chamissonis	chamisso arnica	ARCH3
F	Arnica cordifolia	heartleaf arnica	ARCO9
F	Arnica latifolia	broadleaf arnica	ARLA8
F	Arnica parryi	Parry's arnica	ARPA13
F	Arnica sororia	twin arnica	ARSO2
F	Arnica sp.	arnica	ARNIC
F	Artemisia douglasiana	Douglas' sagewort	ARDO3
F	Artemisia ludoviciana	Louisiana sagewort	ARLU
F	Artemisia michauxiana	Michaux's sagewort	ARMI4
F	Aster chilensis ssp. adscendens	Chile aster	ASCHA
F	Aster conspicuus	conspicuus aster	ASCO3
F	Aster engelmannii	Engelmann's aster	ASEN2
F	Aster foliaceus apricus	leafybract aster	ASFOA
F	Aster foliaceus canbyi	Canby aster	ASFOC
F	Aster integrifolius	thickstem aster	ASIN3
F	Aster occidentalis	western aster	ASOC
F	Aster perelegans	elegant aster	ASPE3
F	Aster sp.	aster	ASTER
F	Astragalus agrestis	purple milkvetch	ASAG2
F	Astragalus cibarius	silky milkvetch	ASCI2
F	Astragalus kentrophyta	spiny milkvetch	ASKE
F	Astragalus lentiginosus	specklepod loco milkvetch	ASLE8
F	Astragalus miser	weedy milkvetch	ASMI9
F	Astragalus purshii	woolly pod milkvetch	ASPU9
F	Astragalus sp.	milkvetch sp.	ASTRA

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND SCIENTIFIC NAME

LIFEFORM	SCIENTIFIC NAME	COMMON NAME	CODE
F	Balsamorhiza macrophylla	cutleaf balsamroot	BAMA4
F	Balsamorhiza sagittata	arrowleaf balsamroot	BASA3
F	Besseya wyomingensis	Wyoming besseya	BEWY
F	Bupleurum americanum	American thorow wax	BUAM2
F	Calochortus eurycarpus	white Mariposa lily	CAEU
F	Calochortus macrocarpus	sagebrush Mariposa lily	CAMA5
F	Calochortus sp.	Mariposa lily	CALOC
F	Calypso bulbosa	fairyslipper orchid	CABU
F	Camassia quamash	small camas	CAQU2
F	Campanula rotundifolia	bluebell bellflower	CARO2
F	Castilleja angustifolia	northwestern Indian paintbrush	CAAN7
F	Castilleja cusickii	Cusick's Indian paintbrush	CACU7
F	Castilleja flava	yellow Indian paintbrush	CAFL7
F	Castilleja longispica	longspike Indian paintbrush	CALO7
F	Castilleja miniata	scarlet Indian paintbrush	CAMI12
F	Castilleja pallescens	pale indianpaintbrush	CAPA25
F	Castilleja rustica	country indianpaintbrush	CARU10
F	Castilleja sp.	Indian paintbrush	CASTI2
F	Cerastium arvense	field chickweed	CEAR4
F	Cerastium sp.	chickweed	CERAS
F	Chaenactis alpina	alpine duskymaiden	CHAL2
F	Cirsium arvense	Canadian thistle	CIAR4
F	Cirsium scariosum	meadow thistle	CISC2
F	Cirsium sp.	thistle	CIRSI
F	Claytonia lanceolata	lanceleaf springbeauty	CLLA2
F	Clematis hirsutissima	hairy clematis	CLHI
F	Collinsia parviflora	smallflower blue eyed Mary	COPA3
F	Collomia debilis var. debilis	alpine mountain trumpet	CODED
F	Collomia grandiflora	largeflowered mountain trumpet	COGR4
F	Collomia linearis	narrowleaf collomia	COLI2
F	Comandra umbellata	bastard toadflax	COUM
F	Corallorhiza maculata	summer coralroot	COMA4
F	Corallorhiza mertensiana	Pacific coralroot	COME4
F	Corallorhiza sp.	coralroot	CORAL
F	Corallorhiza striata	hooded coralroot	COST
F	Corallorhiza wisteriana	spring coralroot	COWI2
F	Coryphantha missouriensis	Missouri foxtail cactus	COMI5
F	Crepis acuminata	longleaf hawksbeard	CRAC2
F	Crepis intermedia	gray hawksbeard	CRIN4
F	Crepis modocensis	Siskiyou hawksbeard	CRMO4
F	Crepis occidentalis	largeflower hawksbeard	CROC
F	Crepis sp.	hawksbeard	CREPI
F	Cryptantha stricta	Yampa River catseye	CRST5
F	Cryptantha watsonii	Watson's cryptantha	CRWA2
F	Cymopteris acaulis	stemless springparsley	CYAC
F	Cymopteris bipinnatus (nivalis)	snowline springparsley	CYBI
F	Cymopteris sp.	springparsley	CYMOP
F	Cynoglossum officinale	gypsyflower	CYOF
F	Delphinium andersonii	Anderson's larkspur	DEAN
F	Delphinium bicolor	little larkspur	DEBI
F	Delphinium glaucescens	smooth larkspur	DEGL2
F	Delphinium nuttallianum	Nuttall's larkspur	DENU2
F	Delphinium occidentale	duncecap larkspur	DEOC
F	Delphinium sp.	larkspur	DELPH
F	Descurainia sp.	tansymustard	DESCU
F	Descurania pinnata	western tansymustard	DEPI
F	Disporum trachycarpum	roughfruit fairybells	DITR2
F	Dodecatheon conjugens	Bonneville shootingstar	DOCO
F	Dodecatheon pulchellum	darkthroat shootingstar	DOPU
F	Dodecatheon sp.	shootingstar	DODEC
F	Draba crassifolia	snowbed whitlowgrass	DRCR2
F	Draba oligosperma	fewseed whitlowgrass	DROL
F	Draba sp.	draba	DRABA
F	Epilobium alpinum (anagallidifolium	alpine willowherb	EPAL
F	Epilobium angustifolium	fireweed	EPAN2
F	Epilobium minutum	small willowweed	EPMI
F	Epilobium palustre	marsh willowherb	EPPA
F	Epilobium sp.	willowherb	EPILO
F	Epilobium watsonii parishii	coast willowweed	EPWAP2

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND SCIENTIFIC NAME

LIFEFORM	SCIENTIFIC NAME	COMMON NAME	CODE
F	Equisetum arvense	field horsetail	EQAR
F	Equisetum sp.	horsetail	EQUIS
F	Erigeron (Trimorpha) lonchophyllus	shortray boreal daisy	ERLO
F	Erigeron caespitosus	tufted fleabane	ERCA2
F	Erigeron compositus	cutleaf fleabane	ERCO4
F	Erigeron divergens	spreading fleabane	ERDI4
F	Erigeron glabellus	streamside fleabane	ERGL2
F	Erigeron leiomerus	rockslide yellow fleabane	ERLE6
F	Erigeron peregrinus	subalpine fleabane	ERPE3
F	Erigeron pumilus	shaggy fleabane	ERPU2
F	Erigeron sp.	fleabane	ERIGE2
F	Erigeron speciosus	aspen fleabane	ERSP4
F	Erigeron tweedyi	Tweedy's fleabane	ERTW
F	Erigeron ursinus	Bear River fleabane	ERUR2
F	Eriogonum heracleoides	parsnipflower buckwheat	ERHE2
F	Eriogonum ochrocephalum	white woolly buckwheat	EROC2
F	Eriogonum ovalifolium	cushion buckwheat	EROV
F	Eriogonum sp.	wild buckwheat	ERIOG
F	Eriogonum umbellatum	sulfur wildbuckwheat	ERUM
F	Eriophyllum lanatum	woolly eriophyllum	ERLA6
F	Eritrichium nanum	arctic alpine forget me not	ERNA
F	Erysimum inconspicuum	shy wallflower	ERIN7
F	Erysimum sp.	wallflower	ERYSI
F	Erythronium grandiflorum	dog tooth lily	ERGR9
F	Floerkea proserpinacoides	false mermaidweed	FLPR
F	Fragaria sp.	strawberry	FRAGA
F	Fragaria vesca	woodland strawberry	FRVE
F	Fragaria virginiana	Virginia strawberry	FRVI
F	Frasera sp.	frasera	FRASE
F	Frasera speciosa	showy frasera	FRSP
F	Fritillaria atropurpurea	spotted missionbells	FRAT
F	Fritillaria pudica	yellow missionbells	FRPU2
F	Galium aparine	stickywilly	GAAP2
F	Galium bifolium	twinleaf bedstraw	GABI
F	Galium boreale	northern bedstraw	GABO2
F	Galium sp.	bedstraw	GALIU
F	Galium triflorum	fragrant bedstraw	GATR3
F	Gaultheria humifusa	alpine spicy wintergreen	GAHU
F	Gayophytum diffusum	spreading groundsmoke	GADI2
F	Gentiana	gentian	GENTI
F	Geranium richardsonii	Richardson's geranium	GERI
F	Geranium sp.	geranium	GERAN
F	Geranium viscosissimum	sticky geranium	GEVI2
F	Geum macrophyllum	largeleaf avens	GEMA4
F	Geum triflorum	prairiesmoke	GETR
F	Gilia aggregata	skyrocket gilia	GIAG
F	Goodyera oblongifolia	western rattlesnake plantain	GOOB2
F	Habenaria (Piperia) unalascensis	Alaska reinorchid	HAUN
F	Habenaria (Platanthera)dilatata v.	scentbottle	HADID
F	Habenaria saccata	Modoc bogorchid	HASA
F	Habenaria sp.	bog orchid	HABEN
F	Hackelia floribunda	western stickseed	HAFL2
F	Hackelia micrantha (jessicae)	Jessica sticktight	HAJE
F	Hackelia patens	common stickseed	HAPA
F	Hackelia sp.	stickseed	HACKE
F	Haplopappus (Pyrrocoma) uniflorus	plantain goldenweed	HAUN2
F	Haplopappus (Stenotus) stenophyllus	narrowleaf goldenweed	HAST
F	Haplopappus sp.	goldenweed	HAPLO
F	Helianthella uniflora	one-flower helianthella	HEUN
F	Heracleum lanatum (maximum)	common cowparsnip	HELA4
F	Heuchera cylindrica var. alpina	alpine alumroot	HECYA
F	Heuchera sp.	alumroot	HEUCH
F	Hieracium albertinum (cynoglossoide	houndstongue hawkweed	HIAL
F	Hieracium albiflorum	white hawkweed	HIAL2
F	Hieracium cynoglossoides	houndstongue hawkweed	HICY
F	Hieracium gracile	slender hawkweed	HIGR
F	Hieracium sp.	hawkweed	HIERA
F	Hydrophyllum capitatum	ballhead waterleaf	HYCA4
F	Hymenoxys (Tetraneuris) grandiflora	graylocks hymenoxys	HYGR5

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND SCIENTIFIC NAME

LIFEFORM	SCIENTIFIC NAME	COMMON NAME	CODE
F	Iliamna rivularis	streambank globemallow	ILRI
F	Iris missouriensis	Rocky Mountain iris	IRMI
F	Ivesia tweedyii	Tweedy's ivesia	IVTW
F	Lappula redowskii (occidentalis var	desert stickseed	LARE
F	Lesquerella carinata	Idaho bladderpod	LECA10
F	Lesquerella multiceps	manyhead bladderpod	LEMU2
F	Lewisia sp.	bitterroot	LEWIS
F	Ligusticum filicinum	fernleaf licoriceroot	LIFI
F	Ligusticum sp.	licoriceroot	LIGUS
F	Linum perenne (lewisii)	prairie flax	LIPE2
F	Listera cordata	heartleaf listera	LICO6
F	Lithophragma bulbifera (glabrum)	bulbous woodlandstar	LIBU2
F	Lithophragma parviflorum	smallflower woodlandstar	LIPA5
F	Lithophragma sp.	woodlandstar	LITHO2
F	Lithophragma tenellum	slender woodlandstar	LITE4
F	Lithospermum ruderale	western gromwell	LIRU4
F	Lloydia serotina	common alplily	LLSE
F	Lomatium ambiguum	Wyeth biscuitroot	LOAM
F	Lomatium cous	cous biscuitroot	LOCO4
F	Lomatium sp.	biscuitroot	LOMAT
F	Lomatium triternatum	nineleaf biscuitroot	LOTR2
F	Lupinus argenteus	silvery lupine	LUAR3
F	Lupinus argenteus var. depressus	depresssed lupine	LUARD2
F	Lupinus caudatus	tailcup lupine	LUCA
F	Lupinus lepidus	prairie lupine	LULE2
F	Lupinus leucophyllus	velvet lupine	LULE3
F	Lupinus sericeus	silky lupine	LUSE4
F	Lupinus sp.	lupine	LUPIN
F	Machaeranthera canescens	hoary aster	MACA2
F	Malva sp.	mallow	MALVA
F	Medicago sativa	alfalfa	MESA
F	Mentha arvensis	field (wild) mint	MEAR4
F	Mentha arvensis var. glabrata (cana	field mint	MEARG
F	Mertensia oblongifolia	oblongleaf bluebells	MEOB
F	Mertensia paniculata	tall bluebells	MEPA
F	Mertensia sp.	bluebells	MERTE
F	Mertensia viridis (lanceolata var.	greenleaf bluebells	MEVI4
F	Microseris nutans	nodding microseris	MINU
F	Microseris sp.	microseris	MICRO6
F	Microseris troximoides	weevil microseris	MITR5
F	Microsteris gracilis	slender (false) phlox	MIGR
F	Mimulus glabratus	roundleaf monkeyflower	MIGL
F	Mimulus guttatus	seep monkeyflower	MIGU
F	Mitella pentandra	fivestamen miterwort	MIPE
F	Mitella sp.	miterwort	MITEL
F	Mitella stauropetala	smallflower miterwort	MIST3
F	Nemophila breviflora	basin nemophila	NEBR
F	Nemophila parviflora	smallflower nemophila	NEPA
F	Oenothera (Camissonia) subacaulis	diffuseflower eveningprimrose	OESU
F	Oenothera caespitosa (cespitosa)	tufted eveningprimrose	OECE2
F	Opuntia polyacantha	plains pricklypear	OPPO
F	Orobanche fasciculata	clustered broomrape	ORFA
F	Orobanche sp.	broomrape	OROBA
F	Orobanche uniflora var. minuta	(small) oneflowered broomrape	ORUNM2
F	Orthocarpus sp.	owlclover	ORTHO
F	Osmorhiza chilensis	sweetcicely	OSCH
F	Osmorhiza depauperata	bluntseed sweetroot	OSDE
F	Osmorhiza occidentalis	western sweetroot	OSOC
F	Osmorhiza sp.	sweetroot	OSMOR
F	Oxyria digyna	alpine mountainsorrel	OXDI3
F	Oxytropis campestris	cold mountain crazyweed	OXCA4
F	Oxytropis lagopus	hairsfoot pointloco	OXLA2
F	Oxytropis sericea	silver oxytrope	OXSE
F	Oxytropis sp.	crazyweed	OXYTR
F	Oxytropis viscida	sticky crazyweed	OXVI2
F	Paeonia brownii	Brown's peony	PABR
F	Pedicularis bracteosa	bracted lousewort	PEBR
F	Pedicularis contorta var. ctenophor	coiled lousewort	PECOC
F	Pedicularis groenlandica	elephanthead lousewort	PEGR2

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND SCIENTIFIC NAME

LIFEFORM	SCIENTIFIC NAME	COMMON NAME	CODE
F	Pedicularis parryi	Parry's lousewort	PEPA3
F	Pedicularis racemosa	sickletop lousewort	PERA
F	Pedicularis sp.	lousewort	PEDIC
F	Penstemon aridus	arid (stiffleaf) penstemon	PEAR2
F	Penstemon attenuatus	sulfur penstemon	PEAT3
F	Penstemon cyaneus	blue penstemon	PECY3
F	Penstemon eriantherus	fuzzytongue penstemon	PEER
F	Penstemon gracilis	slender penstemon	PEGR5
F	Penstemon montanus	mountain penstemon	PEMO4
F	Penstemon montanus var. idahoensis	Central Idaho penstemon	PEMOI
F	Penstemon procerus	littleflower penstemon	PEPR2
F	Penstemon rydbergii	Rydberg's penstemon	PERY
F	Penstemon sp.	penstemon	PENST
F	Perideridia gairdneri	common yampa	PEGA3
F	Perideridia sp.	yampa	PERID
F	Petrophytum caespitosum	rock spirea	PECA12
F	Phacelia hastata	silverleaf phacelia	PHHA
F	Phacelia heterophylla	varileaf phacelia	PHHE2
F	Phacelia sericiea	silky phacelia	PHSE
F	Phlox caespitosa	tufted phlox	PHCA7
F	Phlox hoodii	spiny phlox	PHHO
F	Phlox longifolia	longleaf phlox	PHLO2
F	Phlox multiflora	flowery phlox	PHMU3
F	Phlox pulvinata	cushion phlox	PHPU5
F	Phlox sp.	phlox	PHLOX
F	Physaria didymocarpa var. didymocar	common twinpod	PHDID
F	Plagiobothrys stipitatus	slender popcornflower	PLST
F	Polygonum (douglasii var.) engelman	Engelmann's knotweed	POEN
F	Polygonum bistortoides	American bistort	POBI6
F	Polygonum douglasii	Douglas' knotweed	PODO4
F	Polygonum persicaria	spotted knotweed	POPE3
F	Polygonum sp.	knotweed	POLYG
F	Potentilla arguta	tall cinquefoil	POAR7
F	Potentilla concinna	elegant cinquefoil	POCO13
F	Potentilla diversifolia	varileaf cinquefoil	PODI2
F	Potentilla glandulosa	gland cinquefoil	POGL9
F	Potentilla gracilis	northwest cinquefoil	POGR9
F	Potentilla ovina	sheep cinquefoil	POOV2
F	Potentilla recta	sulfur cinquefoil	PORE5
F	Potentilla sp.	cinquefoil	POTEN
F	Prunella vulgaris	common selfheal	PRVU
F	Pteridium aquilinum	western brakenfern	PTAQ
F	Pterospora andromedea	woodland pinedrops	PTAN2
F	Pyrola (Moneses) uniflora	oneflowered woodnymph	PYUN
F	Pyrola asarifolia	liverleaf wintergreen	PYAS
F	Pyrola chlorantha	greenflowered wintergreen	PYCH
F	Pyrola dentata	toothleaf shinleaf	PYDE
F	Pyrola picta	whiteveined shinleaf	PYPI2
F	Pyrola secunda	sidebells wintergreen	PYSE
F	Pyrola sp.	shinleaf	PYROL
F	Ranunculus glabberimus	sagebrush buttercup	RAGL
F	Ranunculus glabberimus v. ellipticu	elliptical buttercup	RAGLE
F	Ranunculus uncinatus	hooked buttercup	RAUN
F	Rorippa sinuata	spreading yellowcress	ROSI2
F	Rorippa sp.	yellowcress	RORIP
F	Rudbeckia occidentalis	western coneflower	RUOC2
F	Rumex acetosella	common sheep sorrel	RUAC3
F	Rumex crispus	curly dock	RUCR
F	Rumex paucifolius	fewleaved dock	RUPA6
F	Rumex salicifolius	willow dock	RUSA
F	Rumex sp.	dock	RUMEX
F	Saxifraga arguta (odontoloma)	brook saxifrage	SAAR13
F	Saxifraga oppositifolia	purple mountain saxifrage	SAOP
F	Saxifraga rhomboidea	diamondleaf saxifrage	SARH2
F	Saxifraga sp.	saxifrage	SAXIF
F	Scutellaria galericulata	marsh skullcap	SCGA
F	Sedum lanceolatum	spearleaf stonecrop	SELA
F	Sedum sp.	stonecrop	SEDUM

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND SCIENTIFIC NAME

LIFEFORM	SCIENTIFIC NAME	COMMON NAME	CODE
F	Selaginella densa var. densa	dense spike moss	SEDED
F	Selaginella sp.	selaginella	SELAG
F	Senecio canus	woolly groundsel	SECA2
F	Senecio crassulus	thickleaf groundsel	SECR
F	Senecio dimorphophyllus	splitleaf groundsel	SEDI4
F	Senecio fremontii	Fremont's groundsel	SEFR3
F	Senecio integerrimus	lambstongue groundsel	SEIN2
F	Senecio pauperculus	balsam groundsel	SEPA5
F	Senecio serra	butterweed groundsel	SESE2
F	Senecio sp.	senecio	SENEC
F	Senecio streptanthifolius var. brev	cleftleaf groundsel	SEST2
F	Senecio triangularis	arrowleaf groundsel	SETR
F	Senecio vulgaris	common groundsel	SEVU
F	Senicio spp.	groundsel	SENEC
F	Silene oregana	Oregon silene	SIOR3
F	Silene sp.	silene	SILEN
F	Smilacina racemosa	feathery false Solomon's seal	SMRA
F	Smilacina sp.	false Solomon's seal	SMILA
F	Smilacina stellata	starry false Solomon's seal	SMST
F	Solidago canadensis	Canada goldenrod	SOCA6
F	Solidago missouriensis	Missouri goldenrod	SOMI2
F	Solidago multiradiata	mountain goldenrod	SOMU
F	Solidago nana	baby goldenrod	SENA
F	Solidago sp.	goldenrod	SOLID
F	Spiranthes romanzoffiana	continental ladiestresses	SPRO
F	Stellaria (Pseudostellaria) jamesia	tuber starwort	STJA2
F	Stellaria americana	American chickweed	STAM
F	Stellaria longipes var. altocaulis	blueleaf starwort	STLOA
F	Streptopus amplexifolius	claspleaf twistedstalk	STAM2
F	Taraxacum officinale	common dandelion	TAOF
F	Thalictrum fendleri	Fendler's meadowrue	THFE
F	Thalictrum occidentale	western meadowrue	THOC
F	Thlaspi sp.	pennycress	THLAS
F	Townsendia condensata	hairy townsendia	TOCO2
F	Townsendia florifer	showy townsendia	TOFL2
F	Townsendia montana (alpigena)	mountain townsendia	TOMO
F	Townsendia parryi	Parry's daisy	TOPA2
F	Townsendia sp.	townsendia	TOWNS
F	Tragopogon dubius	yellow salsify	TRDU
F	Trifolium arvense	rabbitfoot clover	TRAR4
F	Trifolium haydenii	Hayden's clover	TRHA
F	Trifolium hybridum	alsike clover	TRHY
F	Trifolium longipes	longstalk clover	TRLO
F	Trifolium longipes ssp. reflexum	droopflower clover	TRLOR
F	Trifolium sp.	clover	TRIFO
F	Triteleia grandiflora	wild hyacinth	TRGR7
F	unknown Boraginaceae	unknown in the borage family	BORAG
F	unknown Caryophyllaceae	unknown pink family	CARYO
F	unknown Chenopodiaceae	unknown goosefoot	CHENO
F	unknown Compositae	unknown Composite	COMPO
F	unknown Cruciferae	unknown mustard	CRUCI
F	unknown forbs (may be more than one	unknown forbs	FORBS
F	unknown forbs w/ > trace cover	unknown forbs	UNFO
F	unknown Labiatae	mint family	LABIAT
F	unknown Liliaceae	Unknown lily	LILIA
F	unknown Orchidaceae	Orchid family	ORCHI
F	unknown Scrophulariaceae	unknown snapdragon family	SCROPHU
F	unknown Umbelliferae	unknown umbell (parsley) family	UMBEL
F	Urtica dioica	stinging nettle	URDI
F	Valeriana acutiloba	sharpleaf valerian	VAAC
F	Valeriana occidentalis	western valerian	VAOC2
F	Veronica serpyllifolia	thymeleaf speedwell	VESE
F	Veronica sp.	speedwell	VERON
F	Veronica wormskjoldii	American alpine speedwell	VEWO2
F	Viguiera (Heliomeris) multiflora	showy goldeneye	HEMU3
F	Viola adunca	hooked spur violet	VIAD
F	Viola macloskeyi	small white violet	VIMA2
F	Viola nuttallii	Nuttall's violet	VINU2
F	Viola purpurea	goosefoot violet	VIPU4

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND SCIENTIFIC NAME

LIFEFORM	SCIENTIFIC NAME	COMMON NAME	CODE
F	Viola sp.	violet	VIOLA
F	Wyethia amplexicaulis	mulesear's wyethia	WYAM
F	Wyethia helianthoides	whitehead wyethia	WYHE2
F	Wyethia sp.	wyethia	WYETHI
F	Zigadenus sp.	deathcamas	ZIGAD
F	Zigadenus venenosus	meadow deathcamas	ZIVE
	Snow	snow	SNOW

LIFEFORM - T = tree
S = shrub
G = Graminoid
F = Forb

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND COMMON NAME

LIFEFORM	COMMON NAME	SCIENTIFIC NAME	CODE
	fern	Fern	FERN
T	Douglas-fir	Pseudotsuga menziesii	PSME
T	Engelmann's spruce	Picea engelmannii	PIEN
T	juniper	Juniperus sp.	JUNIP
T	limber pine	Pinus flexilis	PIFL2
T	lodgepole pine	Pinus contorta	PICO
T	quaking aspen	Populus tremuloides	POTR5
T	Rocky Mountain juniper	Juniperus scopulorum	JUSC2
T	subalpine fir	Abies lasiocarpa	ABLA
T	Utah juniper	Juniperus osteosperma	JUOS
T	western juniper	Juniperus occidentalis	JUOC
T	whitebark pine	Pinus albicaulis	PIAL
S	alkali sagebrush	Artemisia arbuscula ssp. longiloba	ARARL
S	antelope bitterbrush	Purshia tridentata	PUTR2
S	basin big sagebrush	Artemisia tridentata ssp. tridentat	ARTRT
S	bearberry	Arctostaphylos uva-ursi	ARUV
S	Bebb willow	Salix bebbiana	SABE2
S	big sagebrush	Artemisia tridentata ssp. spiciform	ARTRS2
S	bigleaf maple	Acer macrophyllum	ACMA3
S	bigtooth maple	Acer (saccharum) grandidentatum	ACGR
S	black chokecherry	Prunus virginiana ssp. melanocarpa	PRVIM
S	black hawthorn	Crataegus douglasii	CRDO2
S	black sagebrush	Artemisia nova	ARNO4
S	blackberry	Rubus sp.	RUBUS
S	blue huckleberry	Vaccinium globulare	VAGL
S	bog birch	Betula glandulosa	BEGL
S	Bolander's silver sagebrush	Artemisia cana ssp. bolanderi	ARCAB3
S	Booth's willow	Salix boothii	SABO2
S	Coaltown sagebrush	Artemisia cana ssp. viscidula	ARCAV
S	common juniper	Juniperus communis	JUCO6
S	common princes pine (pipsissewa)	Chimaphila umbellata	CHUM
S	common snowberry	Symphoricarpos albus	SYAL
S	curlleaf mountain mahogany	Cercocarpus ledifolius	CELE3
S	currant	Ribes sp.	RIBES
S	Drummond's willow	Salix drummondiana	SADR
S	dwarf blueberry	Vaccinium caespitosum	VACA
S	dwarf rose	Rosa gymnocarpa	ROGY
S	fernbush	Chamaebatiaria millefolium	CHMI2
S	fringed sagebrush	Artemisia frigida	ARFR4
S	Geyer's willow	Salix geyerana	SAGE2
S	gooseberry currant	Ribes montigenum	RIMO2
S	gray low sagebrush	Artemisia arbuscula ssp. arbuscula	ARARA
S	grayleaf red raspberry	Rubus idaeus (ssp. sachalinensis) g	RUIDS
S	green rabbitbrush	Chrysothamnus viscidiflorus	CHVI8
S	Greene mountainash	Sorbus scopulina	SOSC2
S	grouse whortleberry	Vaccinium scoparium	VASC
S	Hooker's mountainavens	Dryas octopetala ssp. hookeriana	DROCH
S	Lemmon's willow	Salix lemmonii	SALE
S	mallow ninebark	Physocarpus malvaceus	PHMA5
S	mountain big sagebrush	Artemisia tridentata ssp. vaseyana	ARTRV
S	myrtle pachystima	Pachistima myrsinites	PAMY
S	narrowleaf goldenweed	Haplopappus suffruticosus	HASU
S	northern black currant	Ribes hudsonianum	RIHU
S	Oregongrape	Berberis repens	BERE
S	prickly currant	Ribes lacustre	RILA
S	prickly rose	Rosa acicularis	ROAC
S	rabbitbrush	Chrysothamnus sp.	CHRYS
S	redosier dogwood	Cornus stolonifera	COST4
S	rock clematis	Clematis columbiana	CLCO2
S	Rocky Mountain maple	Acer glabrum	ACGL
S	rose	Rosa sp.	ROSA
S	rubber rabbitbrush	Chrysothamnus nauseosus	CHNA2
S	russet buffaloberry	Shepherdia canadensis	SHCA
S	sandbar willow	Salix exigua	SAEX
S	Saskatoon serviceberry	Amelanchier alnifolia	AMAL2
S	scarlet elderberry	Sambucus racemosa	SARA2
S	Scouler's willow	Salix scouleriana	SASC
S	shrubby cinquefoil	Potentilla fruticosa	POFR4

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND COMMON NAME

LIFEFORM	COMMON NAME	SCIENTIFIC NAME	CODE
S	snow willow	Salix nivalis (reticulata ssp. niva	SANI3
S	snowberry	Symphoricarpos sp.	SYMPH
S	snowbrush ceanothus	Ceanothus velutinus	CEVE
S	spineless horsebrush	Tetradymia canescens	TECA2
S	sticky currant	Ribes viscosissimum	RIVI3
S	stiff sagebrush	Artemisia rigida	ARRI2
S	thimbleberry	Rubus parviflorus	RUPA
S	threetip sagebrush	Artemisia tripartita	ARTR4
S	twinberry honeysuckle	Lonicera involucrata	LOIN5
S	Utah honeysuckle	Lonicera utahensis	LOUT2
S	wax current	Ribes cereum	RICE
S	western river alder	Alnus incana var. occidentalis	ALINO
S	white spirea	Spiraea betulifolia	SPBE2
S	whitestem gooseberry	Ribes inerme	RIIN2
S	whortleleaf snowberry	Symphoricarpos oreophilus	SYOR2
S	willow	Salix spp.	SALIX
S	winterfat	Eurotia lanata	EULA5
S	Wolf's willow	Salix wolfii	SAWO
S	Wood's rose	Rosa woodsii	ROWO
S	Wyoming big sagebrush	Artemisia tridentata ssp. wyomingen	ARTRW8
S	yellow willow	Salix lutea	SALU2
M	mosses	Mosses	MOSSES
L	LICHEN	LICHEN	LICHEN
G	alaska oniongrass	Melica subulata	MESU
G	alpine bluegrass	Poa alpina	POAL2
G	alpine timothy	Phleum alpinum	PHAL2
G	Baltic rush	Juncus balticus	JUBA
G	basin wildrye	Elymus cinereus	ELCI2
G	beaked sedge	Carex rostrata	CARO6
G	beardless wheatgrass	Agropyron (Pseudoroegneria) spicatu	AGSPI
G	Bebb's sedge	Carex bebbi	CABE2
G	bentgrass	Agrostis sp.	AGROS
G	big bluegrass	Poa ampla	POAM
G	blackroot sedge	Carex elynoides	CAEL3
G	blister sedge	Carex vesicaria	CAVE6
G	blue wildrye	Elymus glaucus	ELGL
G	bluebunch wheatgrass	Agropyron (Pseudoroegneria) spicatu	AGSP
G	bluegrass	Poa sp.	POA
G	bluejoint	Calamagrostis canadensis	CACA4
G	bog bluegrass	Poa leptocoma	POLE2
G	bottlebrush squirreltail	Sitanion hystrix	SIHY
G	brome	Bromus sp.	BROMU
G	California brome	Bromus carinatus	BRCA5
G	Canada bluegrass	Poa compressa	POCO
G	chamisso sedge	Carex pachystachya	CAPA14
G	cheatgrass	Bromus tectorum	BRTE
G	Colorado rush	Juncus confusus	JUCO2
G	Columbia needlegrass	Stipa columbiana	STCO3
G	creeping bentgrass (redtop)	Agrostis stolonifera	AGST2
G	crested wheatgrass	Agropyron cristatum	AGCR
G	Cusick's bluegrass	Poa cusickii	POCU3
G	Douglas' sedge	Carex douglasii	CADO2
G	elk sedge	Carex geyeri	CAGE2
G	Fendler threeawn	Aristida longiseta	ARLO3
G	fescue	Festuca sp.	FESTU
G	fowl bluegrass	Poa palustris	POPA2
G	foxtail	Alopecurus sp.	ALOPE
G	foxtail barley	Hordeum jubatum	HOJU
G	fringed brome	Bromus ciliatus	BRCI2
G	Hood's sedge	Carex hoodii	CAHO5
G	Idaho fescue	Festuca idahoensis	FEID
G	Indian ricegrass	Oryzopsis hymenoides	ORHY
G	inland bluegrass	Poa interior	POIN
G	intermediate wheatgrass	Agropyron intermedium	AGIN2
G	Kentucky bluegrass	Poa pratensis	POPR
G	leiberg bluegrass	Poa leibergii	POLE
G	Letterman's needlegrass	Stipa lettermanii	STLE4
G	Liddon sedge	Carex petasata	CAPE7
G	longstyle rush	Juncus longistylis	JULO

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND COMMON NAME

LIFEFORM	COMMON NAME	SCIENTIFIC NAME	CODE
G	mannagrass	Glyceria sp.	GLYCE
G	meadow barley	Hordeum brachyantherum	HOBR2
G	meadow sedge	Carex praticola	CAPR7
G	Montana wheatgrass	Agropyron albicans	AGAL
G	mutton bluegrass	Poa fendleriana	POFE
G	Nebraska sedge	Carex nebrascensis	CANE2
G	needleandthread	Stipa comata	STCO4
G	needlegrass	Stipa sp.	STIPA
G	nerved bluegrass	Poa nervosa	PONE2
G	Nevada bluegrass	Poa nevadensis	PONE3
G	nodding bluegrass	Poa reflexa	PORE
G	nodding brome	Bromus anomalus	BRAN
G	Norway sedge	Carex norvegica	CANO2
G	oatgrass	Danthonia sp.	DANTH
G	onespike danthonia	Danthonia unispicata	DAUN
G	oniongrass	Melica bulbosa	MEBU
G	oniongrass	Melica sp.	MELIC
G	orchardgrass	Dactylis glomerata	DAGL
G	Payson's sedge	Carex paysonis	CAPA31
G	pine bluegrass	Poa scabrella	POSC
G	pine needlegrass	Stipa pinetorum	STPI2
G	pinegrass	Calamagrostis rubescens	CARU
G	plains bluegrass	Poa arida	POAR3
G	prairie Junegrass	Koeleria nitida (cristata) (macrant	KOCR
G	purple oniongrass	Melica spectabilis	MESP
G	purple reedgrass	Calamagrostis purpurascens	CAPU
G	quackgrass	Agropyron repens	AGRE2
G	Raynolds' sedge	Carex raynoldsii	CARA6
G	ricegrass	Oryzopsis sp.	ORYZO
G	rock sedge	Carex rupestris	CARU3
G	Ross' sedge	Carex rossii	CARO5
G	rough bentgrass	Agrostis scabra	AGSC5
G	rough fescue	Festuca scabrella	FESC
G	rush	Juncus sp.	JUNCU
G	Sandberg bluegrass	Poa secunda	POSE
G	Sandberg bluegrass	Poa sandbergii	POSA12
G	sedge	Carex sp.	CAREX
G	sheep fescue	Festuca ovina	FEOV
G	shortawn foxtail	Alopecurus aequalis	ALAE
G	Sierran hare sedge	Carex leporinella	CALE9
G	skyline bluegrass	Poa (cusickii) epilis	POCUE
G	slender wheatgrass	Agropyron trachycaulum	AGTR
G	smallflowered woodrush	Luzula parviflora	LUPA4
G	smallwing sedge	Carex microptera	CAMI7
G	smooth brome	Bromus inermis	BRIN2
G	softleaf sedge	Carex disperma	CADI6
G	spike bentgrass	Agrostis exarata	AGEX
G	spike fescue	Hesperchloa (Leucopoa) kingii	LEKI2
G	spike fescue	Hesperochloa kingii	HEKI
G	spike trisetum	Trisetum spicatum	TRSP2
G	spreading wheatgrass	Agropyron scribneri	AGSC4
G	swordleaf rush	Juncus ensifolius	JUEN
G	thickspike wheatgrass	Agropyron dasystachyum	AGDA
G	threadleaf sedge	Carex filifolia	CAFI
G	timber oatgrass	Danthonia intermedia	DAIN
G	timberline bluegrass	Poa rupicola	PORU10
G	timothy	Phleum pratense	PHPR3
G	tufted hairgrass	Deschampsia cespitosa	DECE
G	valley sedge	Carex vallicola	CAVA3
G	water sedge	Carex aquatilis	CAAQ
G	western needlegrass	Stipa occidentalis	STOC2
G	western wheatgrass	Agropyron (Pascopyrum) smithii	AGSM
G	wheatgrass	Agropyron sp.	AGROP
G	Wheeler bluegrass	Poa nervosa var. wheeleri	PONEW
G	wildrye	Elymus sp.	ELYMU
G	Wolf's trisetum	Trisetum wolfii	TRWO3
G		unknown grasses w/ > trace cover	UNKGRA
F	(small) oneflowered broomrape	Orobanche uniflora var. minuta	ORUNM2
F	agoseris	Agoseris sp.	AGOSE
F	Alaska reinorchid	Habenaria (Piperia) unalascensis	HAUN

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND COMMON NAME

LIFEFORM	COMMON NAME	SCIENTIFIC NAME	CODE
F	alfalfa	Medicago sativa	MESA
F	alpine alumroot	Heuchera cylindrica var. alpina	HECYA
F	alpine duskymaiden	Chaenactis alpina	CHAL2
F	alpine mountain trumpet	Collomia debilis var. debilis	CODED
F	alpine mountainsorrel	Oxyria digyna	OXDI3
F	alpine pussytoes	Antennaria alpina var. media	ANAL4
F	alpine spicy wintergreen	Gaultheria humifusa	GAHU
F	alpine willowherb	Epilobium alpinum (anagallidifolium	EPAL
F	alsike clover	Trifolium hybridum	TRHY
F	alumroot	Heuchera sp.	HEUCH
F	American alpine speedwell	Veronica wormskjoldii	VEWO2
F	American bistort	Polygonum bistortoides	POBI6
F	American chickweed	Stellaria americana	STAM
F	American thorow wax	Bupleurum americanum	BUAM2
F	Anderson's larkspur	Delphinium andersonii	DEAN
F	arctic alpine forget me not	Eritrichium nanum	ERNA
F	arid (stiffleaf) penstemon	Penstemon aridus	PEAR2
F	arnica	Arnica sp.	ARNIC
F	arrowleaf balsamroot	Balsamorhiza sagittata	BASA3
F	arrowleaf groundsel	Senecio triangularis	SETR
F	aspen fleabane	Erigeron speciosus	ERSP4
F	aster	Aster sp.	ASTER
F	baby goldenrod	Solidago nana	SENA
F	ballhead sandwort	Arenaria congesta	ARCO5
F	ballhead waterleaf	Hydrophyllum capitatum	HYCA4
F	balsam groundsel	Senecio pauperculus	SEPA5
F	basin nemophila	Nemophila breviflora	NEBR
F	bastard toadflax	Comandra umbellata	COUM
F	Bear River fleabane	Erigeron ursinus	ERUR2
F	bedstraw	Galium sp.	GALIU
F	biscuitroot	Lomatium sp.	LOMAT
F	bitterroot	Lewisia sp.	LEWIS
F	blue penstemon	Penstemon cyaneus	PECY3
F	bluebell bellflower	Campanula rotundifolia	CARO2
F	bluebells	Mertensia sp.	MERTE
F	blueleaf starwort	Stellaria longipes var. altocaulis	STLOA
F	bluntseed sweetroot	Osmorhiza depauperata	OSDE
F	bog orchid	Habenaria sp.	HABEN
F	Bonneville shootingstar	Dodecatheon conjugens	DOCO
F	box pussytoes	Antennaria arcuata	ANAR4
F	bracted lousewort	Pedicularis bracteosa	PEBR
F	broadleaf arnica	Arnica latifolia	ARLA8
F	brook saxifrage	Saxifraga arguta (odontoloma)	SAAR13
F	broomrape	Orobanche sp.	OROBA
F	Brown's peony	Paeonia brownii	PABR
F	bulbous woodlandstar	Lithophragma bulbifera (glabrum)	LIBU2
F	butterweed groundsel	Senecio serra	SESE2
F	Canada goldenrod	Solidago canadensis	SOCA6
F	Canadian thistle	Cirsium arvense	CIAR4
F	Canby aster	Aster foliaceus canbyi	ASFOC
F	Central Idaho penstemon	Penstemon montanus var. idahoensis	PEMOI
F	chamisso arnica	Arnica chamissonis	ARCH3
F	chickweed	Cerastium sp.	CERAS
F	Chile aster	Aster chilensis ssp. adscendens	ASCHA
F	cinquefoil	Potentilla sp.	POTEN
F	claspleaf twistedstalk	Streptopus amplexifolius	STAM2
F	cleftleaf groundsel	Senecio streptanthifolius var. brev	SEST2
F	clover	Trifolium sp.	TRIFO
F	clustered broomrape	Orobanche fasciculata	ORFA
F	coast willowweed	Epilobium watsonii parishii	EPWAP2
F	coiled lousewort	Pedicularis contorta var. ctenophor	PECOC
F	cold mountain crazyweed	Oxytropis campestris	OXCA4
F	Colorado blue columbine	Aquilegia coerulea	AQCO
F	Columbia monkshood	Aconitum columbianum	ACCO4
F	columbine	Aquilegia sp.	AQUIL
F	common alplily	Lloydia serotina	LLSE
F	common cowparsnip	Heracleum lanatum (maximum)	HELA4
F	common dandelion	Taraxacum officinale	TAOF

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND COMMON NAME

LIFEFORM	COMMON NAME	SCIENTIFIC NAME	CODE
F	common groundsel	Senecio vulgaris	SEVU
F	common selfheal	Prunella vulgaris	PRVU
F	common sheep sorrel	Rumex acetosella	RUAC3
F	common stickseed	Hackelia patens	HAPA
F	common twinpod	Physaria didymocarpa var. didymocar	PHDID
F	common yampa	Perideridia gairdneri	PEGA3
F	common yarrow	Achillea millefolium	ACMI2
F	conspicuus aster	Aster conspicuus	ASCO3
F	continental ladiestresses	Spiranthes romanzoffiana	SPRO
F	coralroot	Corallorhiza sp.	CORAL
F	country indianpaintbrush	Castilleja rustica	CARU10
F	cous biscuitroot	Lomatium cous	LOCO4
F	crazyweed	Oxytropis sp.	OXYTR
F	curly dock	Rumex crispus	RUCR
F	cushion buckwheat	Eriogonum ovalifolium	EROV
F	cushion phlox	Phlox pulvinata	PHPU5
F	Cusick's giant hyssop	Agastache cusickii	AGCU
F	Cusick's Indian paintbrush	Castilleja cusickii	CACU7
F	cutleaf balsamroot	Balsamorhiza macrophylla	BAMA4
F	cutleaf fleabane	Erigeron compositus	ERCO4
F	dagger pod	Anelsonia eurycarpa	ANEU
F	darkthroat shootingstar	Dodecatheon pulchellum	DOPU
F	deathcamas	Zigadenus sp.	ZIGAD
F	dense spike moss	Selaginella densa var. densa	SEDED
F	depresssed lupine	Lupinus argenteus var. depressus	LUARD2
F	desert stickseed	Lappula redowskii (occidentalis var	LARE
F	diamondleaf saxifrage	Saxifraga rhomboidea	SARH2
F	diffuseflower eveningprimrose	Oenothera (Camissonia) subacaulis	OESU
F	dock	Rumex sp.	RUMEX
F	dog tooth lily	Erythronium grandiflorum	ERGR9
F	Douglas' knotweed	Polygonum douglasii	PODO4
F	Douglas' sagewort	Artemisia douglasiana	ARDO3
F	draba	Draba sp.	DRABA
F	droopflower clover	Trifolium longipes ssp. reflexum	TRLOR
F	Drummond's rockcress	Arabis drummondii	ARDR
F	duncecap larkspur	Delphinium occidentale	DEOC
F	elegant aster	Aster perelegans	ASPE3
F	elegant cinquefoil	Potentilla concinna	POCO13
F	elephanthead lousewort	Pedicularis groenlandica	PEGR2
F	elliptical buttercup	Ranunculus glabberimus v. ellipticu	RAGLE
F	Engelmann's aster	Aster engelmannii	ASEN2
F	Engelmann's knotweed	Polygonum (douglasii var.) engelman	POEN
F	fairyslipper orchid	Calypso bulbosa	CABU
F	false mermaidweed	Floerkea proserpinacoides	FLPR
F	false Solomon's seal	Smilacina sp.	SMILA
F	feathery false Solomon's seal	Smilacina racemosa	SMRA
F	Fendler's meadowrue	Thalictrum fendleri	THFE
F	fernleaf licoriceroot	Ligusticum filicinum	LIFI
F	fewleaved dock	Rumex paucifolius	RUPA6
F	fewseed whitlowgrass	Draba oligosperma	DROL
F	field (wild) mint	Mentha arvensis	MEAR4
F	field chickweed	Cerastium arvense	CEAR4
F	field horsetail	Equisetum arvense	EQAR
F	field mint	Mentha arvensis var. glabrata (cana	MEARG
F	fireweed	Epilobium angustifolium	EPAN2
F	fivestamen miterwort	Mitella pentandra	MIPE
F	flattop pussytoes	Antennaria corymbosa	ANCO
F	fleabane	Erigeron sp.	ERIGE2
F	flowery phlox	Phlox multiflora	PHMU3
F	fragrant bedstraw	Galium triflorum	GATR3
F	frasera	Frasera sp.	FRASE
F	Fremont's groundsel	Senecio fremontii	SEFR3
F	fuzzytongue penstemon	Penstemon eriantherus	PEER
F	gentian	Gentiana	GENTI
F	geranium	Geranium sp.	GERAN
F	Geyer onion	Allium geyeri	ALGE
F	gland cinquefoil	Potentilla glandulosa	POGL9
F	goldenrod	Solidago sp.	SOLID

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND COMMON NAME

LIFEFORM	COMMON NAME	SCIENTIFIC NAME	CODE
F	goldenweed	Haplopappus sp.	HAPLO
F	goosefoot violet	Viola purpurea	VIPU4
F	gray hawksbeard	Crepis intermedia	CRIN4
F	graylocks hymenoxys	Hymenoxys (Tetraneuris) grandiflora	HYGR5
F	greenflowered wintergreen	Pyrola chlorantha	PYCH
F	greenleaf bluebells	Mertensia viridis (lanceolata var.	MEVI4
F	groundsel	Senicio spp.	SENEC
F	gypsyflower	Cynoglossum officinale	CYOF
F	hairsfoot pointloco	Oxytropis lagopus	OXLA2
F	hairy clematis	Clematis hirsutissima	CLHI
F	hairy townsendia	Townsendia condensata	TOCO2
F	hawksbeard	Crepis sp.	CREPI
F	hawkweed	Hieracium sp.	HIERA
F	Hayden's clover	Trifolium haydenii	TRHA
F	heartleaf arnica	Arnica cordifolia	ARCO9
F	heartleaf listera	Listera cordata	LICO6
F	hoary aster	Machaeranthera canescens	MACA2
F	Holboell's rockcress	Arabis holboellii	ARHO2
F	hooded coralroot	Corallorhiza striata	COST
F	hooked buttercup	Ranunculus uncinatus	RAUN
F	hooked spur violet	Viola adunca	VIAD
F	horsetail	Equisetum sp.	EQUIS
F	houndstongue hawkweed	Hieracium cynoglossoides	HICY
F	houndstongue hawkweed	Hieracium albertinum (cynoglossoide	HIAL
F	Idaho bladderpod	Lesquerella carinata	LECA10
F	Indian paintbrush	Castilleja sp.	CASTI2
F	Jessica sticktight	Hackelia micrantha (jessicae)	HAJE
F	King's sandwort	Arenaria kingii	ARKI
F	knotweed	Polygonum sp.	POLYG
F	lambstongue groundsel	Senecio integerrimus	SEIN2
F	lanceleaf springbeauty	Claytonia lanceolata	CLLA2
F	largeflower hawksbeard	Crepis occidentalis	CROC
F	largeflowered mountain trumpet	Collomia grandiflora	COGR4
F	largeleaf avens	Geum macrophyllum	GEMA4
F	larkspur	Delphinium sp.	DELPH
F	leafybract aster	Aster foliaceus apricus	ASFOA
F	Lemmon's rockcress	Arabis lemmonii	ARLE
F	licoriceroot	Ligusticum sp.	LIGUS
F	little larkspur	Delphinium bicolor	DEBI
F	littleaf pussytoes	Antennaria microphylla	ANMI3
F	littleflower penstemon	Penstemon procerus	PEPR2
F	liverleaf wintergreen	Pyrola asarifolia	PYAS
F	longleaf hawksbeard	Crepis acuminata	CRAC2
F	longleaf phlox	Phlox longifolia	PHLO2
F	longspike Indian paintbrush	Castilleja longispica	CALO7
F	longstalk clover	Trifolium longipes	TRLO
F	Louisiana sagewort	Artemisia ludoviciana	ARLU
F	lousewort	Pedicularis sp.	PEDIC
F	low pussytoes	Antennaria dimorpha	ANDI2
F	lupine	Lupinus sp.	LUPIN
F	Lyall's angelica	Angelica arguta	ANAR3
F	mallow	Malva sp.	MALVA
F	manyhead bladderpod	Lesquerella multiceps	LEMU2
F	Mariposa lily	Calochortus sp.	CALOC
F	marsh skullcap	Scutellaria galericulata	SCGA
F	marsh willowherb	Epilobium palustre	EPPA
F	meadow deathcamas	Zigadenus venenosus	ZIVE
F	meadow thistle	Cirsium scariosum	CISC2
F	Michaux's sagewort	Artemisia michauxiana	ARMI4
F	microseris	Microseris sp.	MICRO6
F	milkvetch sp.	Astragalus sp.	ASTRA
F	mint family	unknown Labiatae	LABIAT
F	Missouri foxtail cactus	Coryphantha missouriensis	COMI5
F	Missouri goldenrod	Solidago missouriensis	SOMI2
F	miterwort	Mitella sp.	MITEL
F	Modoc bogorchid	Habenaria saccata	HASA
F	mountain goldenrod	Solidago multiradiata	SOMU
F	mountain penstemon	Penstemon montanus	PEMO4
F	mountain townsendia	Townsendia montana (alpigena)	TOMO

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND COMMON NAME

LIFEFORM	COMMON NAME	SCIENTIFIC NAME	CODE
F	mulesear's wyethia	Wyethia amplexicaulis	WYAM
F	narrowleaf collomia	Collomia linearis	COLI2
F	narrowleaf goldenweed	Haplopappus (Stenotus) stenophyllus	HAST
F	nettleleaf giant hyssop	Agastache urticifolia	AGUR
F	nineleaf biscuitroot	Lomatium triternatum	LOTR2
F	nodding microseris	Microseris nutans	MINU
F	nodding onion	Allium cernuum	ALCE2
F	northern bedstraw	Galium boreale	GABO2
F	northwest cinquefoil	Potentilla gracilis	POGR9
F	northwestern Indian paintbrush	Castilleja angustifolia	CAAN7
F	Nuttall's larkspur	Delphinium nuttallianum	DENU2
F	Nuttall's rockcress	Arabis nuttallii	ARNU
F	Nuttall's sandwort	Arenaria (Minuartia) nuttallii	MINU4
F	Nuttall's violet	Viola nuttallii	VINU2
F	oblongleaf bluebells	Mertensia oblongifolia	MEOB
F	one-flower helianthella	Helianthella uniflora	HEUN
F	oneflowered woodnymph	Pyrola (Moneses) uniflora	PYUN
F	orange agoseris	Agoseris aurantiaca	AGAU2
F	Orchid family	unknown Orchidaceae	ORCHI
F	Oregon silene	Silene oregana	SIOR3
F	owlclover	Orthocarpus sp.	ORTHO
F	Pacific anemone	Anemone multifida	ANMU
F	Pacific coralroot	Corallorhiza mertensiana	COME4
F	pale agoseris	Agoseris glauca	AGGL
F	pale indianpaintbrush	Castilleja pallescens	CAPA25
F	Parry's arnica	Arnica parryi	ARPA13
F	Parry's daisy	Townsendia parryi	TOPA2
F	Parry's lousewort	Pedicularis parryi	PEPA3
F	parsnipflower buckwheat	Eriogonum heracleoides	ERHE2
F	pennycress	Thlaspi sp.	THLAS
F	penstemon	Penstemon sp.	PENST
F	phlox	Phlox sp.	PHLOX
F	plains pricklypear	Opuntia polyacantha	OPPO
F	plantain goldenweed	Haplopappus (Pyrrocoma) uniflorus	HAUN2
F	prairie flax	Linum perenne (lewisii)	LIPE2
F	prairie lupine	Lupinus lepidus	LULE2
F	prairiesmoke	Geum triflorum	GETR
F	purple milkvetch	Astragalus agrestis	ASAG2
F	purple mountain saxifrage	Saxifraga oppositifolia	SAOP
F	pussytoes	Antennaria sp.	ANTEN
F	pygmyflower rockjasmine	Androsace septentrionalis	ANSE4
F	rabbitfoot clover	Trifolium arvense	TRAR4
F	raceme pussytoes	Antennaria racemosa	ANRA
F	red baneberry	Actaea rubra	ACRU2
F	Richardson's geranium	Geranium richardsonii	GERI
F	rock spirea	Petrophytum caespitosum	PECA12
F	rockcress	Arabis sp.	ARABI2
F	rockslide yellow fleabane	Erigeron leiomerus	ERLE6
F	Rocky Mountain iris	Iris missouriensis	IRMI
F	rose angelica	Angelica roseanna	ANRO
F	roughfruit fairybells	Disporum trachycarpum	DITR2
F	roundleaf monkeyflower	Mimulus glabratus	MIGL
F	rush pussytoes	Antennaria luzuloides	ANLU2
F	Rydberg's penstemon	Penstemon rydbergii	PERY
F	sagebrush buttercup	Ranunculus glabberimus	RAGL
F	sagebrush Mariposa lily	Calochortus macrocarpus	CAMA5
F	sandwort	Arenaria sp.	ARENA
F	saxifrage	Saxifraga sp.	SAXIF
F	scarlet Indian paintbrush	Castilleja miniata	CAMI12
F	scentbottle	Habenaria (Platanthera)dilatata v.	HADID
F	seep monkeyflower	Mimulus guttatus	MIGU
F	selaginella	Selaginella sp.	SELAG
F	senecio	Senecio sp.	SENEC
F	shaggy fleabane	Erigeron pumilus	ERPU2
F	sharpleaf valerian	Valeriana acutiloba	VAAC
F	sheep cinquefoil	Potentilla ovina	POOV2
F	shinleaf	Pyrola sp.	PYROL
F	shootingstar	Dodecatheon sp.	DODEC
F	shortray boreal daisy	Erigeron (Trimorpha) lonchophyllus	ERLO

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND COMMON NAME

LIFEFORM	COMMON NAME	SCIENTIFIC NAME	CODE
F	showy frasera	Frasera speciosa	FRSP
F	showy goldeneye	Viguiera (Heliomeris) multiflora	HEMU3
F	showy townsendia	Townsendia florifer	TOFL2
F	shy wallflower	Erysimum inconspicuum	ERIN7
F	sickletop lousewort	Pedicularis racemosa	PERA
F	sidebells wintergreen	Pyrola secunda	PYSE
F	silene	Silene sp.	SILEN
F	silky lupine	Lupinus sericeus	LUSE4
F	silky milkvetch	Astragalus cibarius	ASCI2
F	silky phacelia	Phacelia sericiea	PHSE
F	silver oxytrope	Oxytropis sericea	OXSE
F	silverleaf phacelia	Phacelia hastata	PHHA
F	silvery lupine	Lupinus argenteus	LUAR3
F	Siskiyou hawksbeard	Crepis modocensis	CRMO4
F	skyrocket gilia	Gilia aggregata	GIAG
F	slender (false) phlox	Microsteris gracilis	MIGR
F	slender hawkweed	Hieracium gracile	HIGR
F	slender penstemon	Penstemon gracilis	PEGR5
F	slender popcornflower	Plagiobothrys stipitatus	PLST
F	slender woodlandstar	Lithophragma tenellum	LITE4
F	small camas	Camassia quamash	CAQU2
F	small white violet	Viola macloskeyi	VIMA2
F	small willowweed	Epilobium minutum	EPMI
F	smalleaf pussytoes	Antennaria parvifolia	ANPA5
F	smallflower blue eyed Mary	Collinsia parviflora	COPA3
F	smallflower miterwort	Mitella stauropetala	MIST3
F	smallflower nemophila	Nemophila parviflora	NEPA
F	smallflower woodlandstar	Lithophragma parviflorum	LIPA5
F	smallflowered anemone	Anemone parviflora	ANPA
F	smooth larkspur	Delphinium glaucescens	DEGL2
F	snowbed whitlowgrass	Draba crassifolia	DRCR2
F	snowline springparsley	Cymopteris bipinnatus (nivalis)	CYBI
F	spearleaf stonecrop	Sedum lanceolatum	SELA
F	specklepod loco milkvetch	Astragalus lentiginosus	ASLE8
F	speedwell	Veronica sp.	VERON
F	spiny milkvetch	Astragalus kentrophyta	ASKE
F	spiny phlox	Phlox hoodii	PHHO
F	splitleaf groundsel	Senecio dimorphophyllus	SEDI4
F	spotted knotweed	Polygonum persicaria	POPE3
F	spotted missionbells	Fritillaria atropurpurea	FRAT
F	spreading dogbane	Apocynum androsaemifolium	APAN2
F	spreading fleabane	Erigeron divergens	ERDI4
F	spreading groundsmoke	Gayophytum diffusum	GADI2
F	spreading yellowcress	Rorippa sinuata	ROSI2
F	spring coralroot	Corallorhiza wisteriana	COWI2
F	springparsley	Cymopteris sp.	CYMOP
F	starry false Solomon's seal	Smilacina stellata	SMST
F	stemless springparsley	Cymopteris acaulis	CYAC
F	stickseed	Hackelia sp.	HACKE
F	sticky crazyweed	Oxytropis viscida	OXVI2
F	sticky geranium	Geranium viscosissimum	GEVI2
F	stickywilly	Galium aparine	GAAP2
F	stinging nettle	Urtica dioica	URDI
F	stonecrop	Sedum sp.	SEDUM
F	strawberry	Fragaria sp.	FRAGA
F	streambank globemallow	Iliamna rivularis	ILRI
F	streamside fleabane	Erigeron glabellus	ERGL2
F	subalpine fleabane	Erigeron peregrinus	ERPE3
F	sulfur cinquefoil	Potentilla recta	PORE5
F	sulfur penstemon	Penstemon attenuatus	PEAT3
F	sulfur wildbuckwheat	Eriogonum umbellatum	ERUM
F	summer coralroot	Corallorhiza maculata	COMA4
F	sweetcicely	Osmorhiza chilensis	OSCH
F	sweetroot	Osmorhiza sp.	OSMOR
F	tailcup lupine	Lupinus caudatus	LUCA
F	tall bluebells	Mertensia paniculata	MEPA
F	tall cinquefoil	Potentilla arguta	POAR7
F	tansymustard	Descurainia sp.	DESCU
F	tapertip onion	Allium acuminatum	ALAC4

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND COMMON NAME

LIFEFORM	COMMON NAME	SCIENTIFIC NAME	CODE
F	thickleaf groundsel	Senecio crassulus	SECR
F	thickstem aster	Aster integrifolius	ASIN3
F	thistle	Cirsium sp.	CIRSI
F	thymeleaf speedwell	Veronica serpyllifolia	VESE
F	toothleaf shinleaf	Pyrola dentata	PYDE
F	tower rockcress	Arabis glabra	ARGL
F	townsendia	Townsendia sp.	TOWNS
F	tuber starwort	Stellaria (Pseudostellaria) jamesia	STJA2
F	tufted eveningprimrose	Oenothera caespitosa (cespitosa)	OECE2
F	tufted fleabane	Erigeron caespitosus	ERCA2
F	tufted phlox	Phlox caespitosa	PHCA7
F	Tweedy's fleabane	Erigeron tweedyi	ERTW
F	Tweedy's ivesia	Ivesia tweedyii	IVTW
F	twin arnica	Arnica sororia	ARSO2
F	twinleaf bedstraw	Galium bifolium	GABI
F	umber pussytoes	Antennaria umbrinella	ANUM
F	unknown Composite	unknown Compositae	COMPO
F	unknown forbs	unknown forbs w/ > trace cover	UNFO
F	unknown forbs	unknown forbs (may be more than one	FORBS
F	unknown goosefoot	unknown Chenopodiaceae	CHENO
F	unknown in the borage family	unknown Boraginaceae	BORAG
F	Unknown lily	unknown Liliaceae	LILIA
F	unknown mustard	unknown Cruciferae	CRUCI
F	unknown pink family	unknown Caryophyllaceae	CARYO
F	unknown snapdragon family	unknown Scrophulariaceae	SCROPHU
F	unknown umbell (parsley) family	unknown Umbelliferae	UMBEL
F	varileaf cinquefoil	Potentilla diversifolia	PODI2
F	varileaf phacelia	Phacelia heterophylla	PHHE2
F	velvet lupine	Lupinus leucophyllus	LULE3
F	violet	Viola sp.	VIOLA
F	Virginia strawberry	Fragaria virginiana	FRVI
F	wallflower	Erysimum sp.	ERYSI
F	Watson's cryptantha	Cryptantha watsonii	CRWA2
F	weedy milkvetch	Astragalus miser	ASMI9
F	weevil microseris	Microseris troximoides	MITR5
F	western aster	Aster occidentalis	ASOC
F	western brakenfern	Pteridium aquilinum	PTAQ
F	western columbine	Aquilegia formosa	AQFO
F	western coneflower	Rudbeckia occidentalis	RUOC2
F	western gromwell	Lithospermum ruderale	LIRU4
F	western meadowrue	Thalictrum occidentale	THOC
F	western pearlyeverlasting	Anaphalis margaritacea	ANMA
F	western rattlesnake plantain	Goodyera oblongifolia	GOOB2
F	western stickseed	Hackelia floribunda	HAFL2
F	western sweetroot	Osmorhiza occidentalis	OSOC
F	western tansymustard	Descurania pinnata	DEPI
F	western valerian	Valeriana occidentalis	VAOC2
F	white hawkweed	Hieracium albiflorum	HIAL2
F	white Mariposa lily	Calochortus eurycarpus	CAEU
F	white pasqueflower	Anemone (Pulsatilla) occidentalis	ANOC6
F	white woolly buckwheat	Eriogonum ochrocephalum	EROC2
F	whitehead wyethia	Wyethia helianthoides	WYHE2
F	whiteveined shinleaf	Pyrola picta	PYPI2
F	wild buckwheat	Eriogonum sp.	ERIOG
F	wild hyacinth	Triteleia grandiflora	TRGR7
F	wild onion	Allium sp.	ALLIU
F	willow dock	Rumex salicifolius	RUSA
F	willowherb	Epilobium sp.	EPILO
F	woodland pinedrops	Pterospora andromedea	PTAN2
F	woodland strawberry	Fragaria vesca	FRVE
F	woodlandstar	Lithophragma sp.	LITHO2
F	woolly eriophyllum	Eriophyllum lanatum	ERLA6
F	woolly groundsel	Senecio canus	SECA2
F	woolly pod milkvetch	Astragalus purshii	ASPU9
F	woolly pussytoes	Antennaria lanata	ANLA3
F	Wyeth biscuitroot	Lomatium ambiguum	LOAM
F	wyethia	Wyethia sp.	WYETHI
F	Wyoming besseya	Besseya wyomingensis	BEWY
F	yampa	Perideridia sp.	PERID

PLANT NAME REFERENCE TABLE ORDERED BY LIFEFORM AND COMMON NAME

LIFEFORM	COMMON NAME	SCIENTIFIC NAME	CODE
F	Yampa River catseye	Cryptantha stricta	CRST5
F	yellow columbine	Aquilegia flavescens	AQFL
F	yellow Indian paintbrush	Castilleja flava	CAFL7
F	yellow missionbells	Fritillaria pudica	FRPU2
F	yellow salsify	Tragopogon dubius	TRDU
F	yellowcress	Rorippa sp.	RORIP
	snow	Snow	SNOW

LIFEFORM - T = tree
S = shrub
G = Graminoid
F = Forb

GLOSSARY OF TERMS

Alluvial - Pertaining to material or processes associated with transportation or deposition by running water. HP

Alluvial fan - A low, outspread, relatively flat to gently sloping mass of loose soil and/or rock material, shaped like an open fan or a segment of a cone, deposited by a stream (esp. in a semiarid region) at the place where it issues from a narrow mountain valley upon a plain or broad valley, or where a tributary stream is near or at its junction with the main stream, or wherever a constriction in a valley abruptly ceases or the gradient of the stream suddenly decreases; it is steepest near the mouth of the valley where its apex points upstream, and it slopes gently and convexly outward with gradually decreasing gradient. An alluvial cone is a type of alluvial fan with very steep slopes; its generally higher and narrower than a fan. GG '87

Alluvium - Unconsolidated clastic material deposited by running water, including gravel, sand, silt, clay, and various mixtures of these. HP

Alpine - The high-altitude zone in mountains above the upper limits of forests. BB

Ash [volcanic] - Fine pyroclastic material less than 2 mm in all dimensions. KST

Ash flow - A highly heated mixture of volcanic gases and ash, traveling down the flank of a volcano or along the surface of the ground; produced by the explosive disintegration of viscous lava in a volcanic crater, or by the explosive emission of gas-charged ash from a fissure or group of fissures. The solid materials contained in a typical ash flow are generally unsorted and ordinarily include volcanic dust, pumice, scoria, and blocks in addition to ash. Compare-nuee ardente. GG '87

Aspect - The direction toward which a slope faces with respect to the compass or to the rays of the Sun. GG '87

Association [plant] - A climax plant community; all climax stands consisting of essentially the same vegetational layers. RS

Association [map unit] - A kind of map unit used in ecological unit mapping composed of two or more ecological types. The bodies of component ecological types are large enough to be delineated individually at the scale of 1:24000. The bodies of each kind of component ecological type usually occur in a fairly repetitive and describable pattern.

Available water capacity - The portion of water in a soil that can be absorbed by plant roots. It is the amount of water released between in situ field capacity and the permanent wilting point (usually estimated by water content at soil matric potential of -1.5MPa). GSST '87

Avalanche chute - The track or path formed by an avalanche. GG

Ballena - A distinctively-rounded ridgeline-remnant of fan alluvium. The ballena's broadly-rounded shoulders meet from either side to form a narrow crest and merge smoothly with concave sideslopes and then concave, short pediments which form smoothly-rounded drainageways between adjacent ballenas in ideal examples. Modified from FFP '81

Bar - [streams] A ridge-like accumulation of sand, gravel, or other alluvial material formed in the channel, along the banks, or at the mouth of a stream where a decrease in velocity induces deposition; e.g., a channel bar or a meander bar. (coast) - A generic term for any of various elongate offshore ridges, banks, or mounds of sand, gravel, or other unconsolidated material submerged at least at high tide, and built up by the action of waves or currents, especially at the mouth of a river or estuary. GG '87

Basal area - The area of the cross-section of a tree trunk at 4.5 feet above the ground, usually expressed as the sum of tree basal areas in square feet per acre. RS

Basal till - Compact material deposited beneath a moving glacier. Compare - till HP

Basin - (a) Drainage basin; GG (b) (colloquial: western U.S.) A general term for the nearly level to gently sloping bottom surface of an intermontane basin (bolson). Component landforms include playas, broad alluvial flats containing ephemeral drainageways, and relict alluvial and lacustrine surfaces that rarely, if ever, are subject to flooding. Where through-drainage systems are well developed, alluvial plains are dominant and lake plains are absent or of limited extent. Basin floors grade mountainward to distal

parts of piedmont slopes. FFP

Bedded - Formed, arranged, or deposited in layers of beds, or made up of or occurring in the form of beds; esp. said of a layered sedimentary rock, deposit, or formation. GG '87

Bedrock - The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface. Compare - regolith. HP

Bench - Refer to structural bench.

Block [volcanic] - A pyroclast that was ejected in a solid state; it has a diameter greater than 64 mm. Compare - Lapilli, volcanic gravel; cinder. GG '87

Blowout - A general term for a small saucer-, cup-, or trough-shaped hollow or depression formed by wind erosion, on a pre-existing dune or other sand deposit, esp. in an area of shifting sand, loose soil, or where protective vegetation is disturbed or destroyed; the adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Some blowouts may be many kilometers in diameter. Compare - deflation basin. GG '87

Bog - Waterlogged, spongy ground; consisting primarily of mosses, containing acidic, decaying vegetation such as sphagnum, sedges, and heaths, that develops into peat. Compare - fen, swamp. GG

Braided channel or stream - A channel or stream with multiple channels that interweave as a result of repeated bifurcation and convergence of flow around interchannel bars, resembling (in plan view) the strands of a complex braid. Braiding is generally confined to broad, shallow streams of low sinuosity, high bedload, non-cohesive bank material, and a steep gradient. At a given bank-ful discharge, braided streams have steeper slopes and shallower, broader, and less stable channel cross sections than meandering streams. Compare - floodplain landforms. HP

Breccia - A coarse-grained, clastic rock composed of angular rock fragments (larger than 2 mm) commonly cemented together in a finer-grained matrix of varying composition and origin. The consolidated equivalent of rubble. Compare - conglomerate. HP

Buried - Pertaining to landforms, geomorphic surfaces, and paleosols covered by a mantle of geologic material, e.g., sedimentary or volcanic. HP

Butte - An isolated, usually flat-topped upland mass characterized by summit widths that are less than heights or bounding erosional scarps. An upland produced by differential erosion of nearly horizontal, interbedded weak and resistant rocks, with the latter comprising caprock layers. As summit area increases relative to height, buttes are transitional to mesas. Compare - plateau. HP

Caldera - A large, basin-shaped volcanic depression, more or less circular in form, the diameter of which is many times greater than that of the included volcanic vent or vents. The term "caldera" is used regardless of the steepness of the walls or the form of the floor. GG

Canopy coverage - The area covered by the gross outline of an individual plant's foliage, or collectively covered by all individuals of a species within a stand or sample plot. Canopy coverage is expressed as a percentage of the total area in the plot, or as a canopy coverage class (for example, class #1 = 1 to 5 percent coverage). RS

Canyon - A long, deep, narrow, very steep-sided valley with high and precipitous walls in an area of high local relief, e.g., mountain or high plateau terrain. HP

Channel - [stream] The hollow bed where a natural body of surface water flows or may flow. The deepest or central part of the bed of a stream, containing the main current and occupied more or less continuously by water. GG

Chert - A hard, dense or compact, dull to semivitreous, cryptocrystalline sedimentary rock, consisting of cryptocrystalline silica (microcrystalline fibrous quartz, i.e., chalcedony) with lesser amounts of micro- or cryptocrystalline quartz and amorphous silica (opal). It has a tough, splintery to conchoidal fracture and may be white or variously colored gray-green, blue, pink, red, yellow, brown, and black. It commonly occurs as nodular or concretionary segregations in limestones and dolomites. GG

Cinder cone - A conical hill formed by the accumulation of volcanic ejecta, with slopes

usually steeper than 20 percent. HP

Cinders - Uncemented vitric, vesicular, pyroclastic material, more than 2.0 mm in at least one dimension, with an apparent specific gravity (including vesicles) of more than 1.0 and less than 2.0. KST

Cirque - Semicircular, concave, bowl-like area with steep face primarily resulting from erosive activity of a mountain glacier. HP and GG

Classification [soil] - The systematic arrangement of soils into groups or categories on the basis of their characteristics. For definitions of taxa see: Soil Survey Staff, 1975, Soil Taxonomy: A basic system of soil classification for making and interpreting soil surveys (Agric. Handbook 436). GSST '87

Cliff - Any high, very steep to perpendicular or overhanging face of rock or earth; a precipice. GG

Colluvial - Pertaining to material transported and deposited by mass wasting (direct gravitational action) and local unconcentrated runoff on and at the base of moderately steep and steep slopes. HP

Colluvium - Unconsolidated earth material deposited on and at the base of moderately steep and steep slopes by mass wasting (direct gravitational action) and local unconcentrated runoff. Compare - talus, mass wasting. HP

Community [plant community] - An assembly of plants living together, denotes no particular ecological status. The basic unit of vegetation. RS

Community type - A classified plant community distinguished by various criteria, may be seral or climax. RS

Complex [map unit] - A kind of map unit used in mapping ecological units composed of two or more ecological types. The bodies of component ecological types are too small to be individually delineated at the scale of 1:24000.

Component - The ecological type (or types) formally named and described as comprising the delineations of a map unit and for which the map unit is named.

Consociation [map unit] - A kind of map unit used in mapping ecological units composed of one ecological type.

Conglomerate - A coarse-grained, clastic sedimentary rock composed of rounded to subangular rock fragments larger than 2 mm, commonly with a matrix of sand and finer material; cements include silica, calcium carbonate, and iron oxides. The consolidated equivalent of gravel. Compare - breccia. HP

Constancy - The percentage of stands in a habitat type that contain a given species. (Appendix C-1 uses "constancy classes" - "1" = 5 to 15 percent, "2" = 15 to 25 percent, etc.) RS

Cover type - A classified plant community distinguished by the existing dominant or codominant plant canopies. RS

Crater [volcanic] - A basin like rimmed structure, usually at the summit of a volcanic cone; its floor is approximately the diameter of the vent. It may be formed by explosive eruption or by gradual accumulation of pyroclastic material into a surrounding rim. GG

Creep - Slow mass movement of earth material down slopes, primarily under influence of gravity but facilitated by water saturation and frost action. Compare - solifluction. HP

Crest - The commonly linear, narrow summit of a ridge, hill or mountain. Compare - summit(b). FFP

D.B.H. (diameter at breast height) - Tree trunk diameter measured at 4.5 feet (1.4 meters) above the ground.

Debris avalanche - The very rapid and usually sudden sliding and flow of incoherent, unsorted mixtures of soil and weathered bedrock. GG '87

Debris flow - A mass movement of rock fragments, soil, mud; more than half of the particles being larger than sand size. Compare - mudflow (mass move). GG '87

Debris - Any surficial accumulation of loose material detached from rock masses by chemical and mechanical means, as by decay and disintegration, and occurring in the place where it was formed, or transported by water or ice and

redeposited. It consists of rock fragments, finer grained earth material, and sometimes organic matter. HP

Dendritic drainage pattern - A drainage pattern in which the streams branch randomly in all directions and at almost any angle, resembling in plan the branching habit of certain trees. GG '87

Depauperate - Describing an unusually sparse coverage of undergrowth vegetation. This condition often develops beneath a dense forest canopy, especially on sites having a deep layer of duff. RS

Deposit - Earth material of any type, either consolidated or unconsolidated, that has accumulated by some natural processes or agent. GG '87

Deposition - The laying down of any material by any agent such as wind, water, ice or by other natural processes. HP

Depression - Any relatively sunken part of the Earth's surface; esp. a low-lying area surrounded by higher ground. A closed depression has no natural outlet for surface drainage, for example, a karstic sinkhole. GG '87

Dip slope - A slope of land surface, roughly determined by and approximately conforming with the dip of underlying bedded rocks; for example, the long, gently inclined surface of a cuesta. Synonym - structural back slope. Compare - scarp slope. HP

Discontinuity - Any interruption in sedimentation, whatever its cause or length, usually a manifestation of nondeposition and accompanying erosion. GG

Divide - (a) The line of separation, or the ridge, summit, or narrow tract of high ground, marking the boundary between two adjacent drainage basins or dividing the surface waters that flow naturally in one direction from those that flow in the opposite direction. (b) A line that follows the summit of an interfluve. GG '87

Dolomite [rock] - A carbonate sedimentary rock consisting chiefly (more than 50 percent by weight or by areal percentages under the microscope) of the mineral dolomite. GG

Dome - A roughly symmetrical upfold, with beds dipping in all directions, more or less equally, from a point. A smoothly rounded landform of rock mass such as a rock-capped mountain summit, roughly resembling the dome of a building. GG

Dominant - The species having the greatest canopy coverage; may refer to only the vegetational layer in which the species occurs or may refer to that layer plus others.

Drainage class - Has been used in humid areas: includes phrases such as well-drained, moderately well-drained, imperfect, or somewhat poorly and poorly drained. GSST '87

Drainage basin - A region or area bounded by a drainage divide and occupied by a drainage system. GG '87

Drainage pattern - The configuration of arrangement in plan view of the natural stream courses in an area. It is related to local geologic and geomorphologic features and history. GG '87

Drainageway - A general term for channel or course along which water moves in draining an area. GG '87

Draw - A small stream channel, generally more open and with broader floor than a ravine or gulch. HP

Earthflow - A mass-movement landform and process characterized by downslope translation of soil and weathered rock over a discrete basal shear surface (landslide) within well defined lateral boundaries. The basal shear surface is more or less parallel with the ground surface in the downslope portion of the flow, which terminates in lobelike forms. Overall, little or no rotation of the slide mass occurs during displacement, although, in the vicinity of the crown scarp, minor initial rotation is usually observed in a series of slump blocks. Earthflows grade into mudflows through a continuous range in morphology associated with increasing fluidity. GG '87

Ecological type - is defined as a category of land having a unique combination of vegetation (potential natural plant community), soil, topographic features (slope gradient, aspect, slope position, and elevation), climate, geology, and landform. Ecological types differ from each

other in ability to produce vegetation and respond to management practices. PEA

Ecological unit - A mapped landscape unit designed to meet management objectives, comprised of one or more ecological types. FSH

Ecotone -The boundary or transition zone between adjacent plant communities, often delineating different habitat types and sometimes expressed as a hybrid stand. RS

Elevation [survey] - The vertical distance from a datum (usually mean sea level) to a point or object on the earth's surface; esp. the height of a ground point above the level of the sea. Compare -relief. GG '87

End moraine - A moraine produced at the front of an actively flowing glacier at any given time. Compare - terminal and recessional moraines. HP

Eolian - Pertaining to material transported and deposited by wind. Includes earth materials such as dune sands, silty loess deposits, and clay. HP

Erosion - The wearing away of the land surface by running water, waves, or moving ice and wind, or by such processes as mass wasting and corrosion (solution and other chemical processes). The term "geologic erosion" refers to natural processes occurring over long (geologic) time spans. HP

Erosion remnant - A topographic feature that remains or is left standing above the general land surface after erosion has reduced the surrounding area;e.g.,a monadadnock, a butte, or a stack. GG'87

Erosional geomorphology - Owing its origin, form, position or general character to wearing-down (degradational) processes, such as removal of weathered rock debris by any mechanical or chemical processes to form, for example, a pediment or valley-side slope. Compare - constructional. HP

Erratic - A rock fragment carried by glacial ice, or by floating ice, deposited at some distance from the outcrop from which it was derived, and generally though not necessarily, resting on bedrock of different lithology. Size ranges from a pebble to a house-sized block. GG '87

Escarpment - A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and produced by erosion or faulting. The term is more often applied to cliffs produced by differential erosion and it is commonly sued synonymously with ""scarp". HP

Extrusive - Denoting igneous rocks derived from deep-seated molten matter (magmas) emplaced and cooled on the earth's surface. Compare - intrusive, volcanic. HP

Fall [mass movement] - (a) A very rapid movement of a mass of rock or earth that travels mostly through the air by free fall, leaping, bounding, or rolling, with little or no interaction between one moving unit and another; e.g., rockfall, debris fall. (b) The mass of material moved by a fall. GG '87

Fan geomorphology - (a) A gently sloping, fan-shaped mass of detritus forming a section of a very low cone commonly at a place where there is a notable decrease in gradient; specif. an alluvial fan. (b) A fan-shaped mass of congealed lava that formed on a steep slope by the continually changing direction of flow. GG '87

Fan piedmont - The most extensive major landform of most piedmont slopes, formed by (a) the lateral coalescence of mountain-front alluvial fans downslope into one generally smooth slope without the transverse undulations of the semi-conical alluvial fans and (b) accretions of fan aprons. Compare - bajada. FFP

Fault - A fracture or fracture zone of the earth with displacement along one side in respect to the other. GG '87

Flat - A general term for a level or nearly level surface or small areas of land marked by little or no relief, e.g., mud flat or valley flat. GG

Flood plain - The nearly level alluvial plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is usually a constructional landform built of sediment deposited during overflow and lateral migration of the streams. HP

Floor - A generic term for the nearly level, lower part of a basin or valley, the bed of any body of water, e.g., the nearly level surface beneath the water of a stream, lake or ocean.

Flow [mass movement] - (a) A mass movement of unconsolidated material that exhibits a continuity of motion and a plastic or semifluid behavior resembling that of a viscous fluid; e.g., creep, solifluction; earthflow; mudflow; debris flow. Water is usually required for most types of flow movement. (b) The mass of material moved by a flow. GG '87

Fluvial - Of or pertaining to rivers; produced by river action, as a fluvial plain. HP

Foothills - A steeply sloping upland with hill relief (up to 300 meters) that fringes a mountain range or high-plateau escarpment. Compare - hill, mountain, plateau. GG

Footslope - The landform position that forms the inner, gently inclined surface at the base of a hillslope. The surface-profile is dominantly concave; it is a transition zone between upslope sites of erosion (shoulder, backslope) and downslope sites of deposition (toeslope). Compare - shoulder, toeslope. HP

Forb - An herbaceous, usually broadleaved plant that is not a graminoid. RS

Frequency - The percentage of quadrants (tiny plots) in a single sample stand that contain a given species, or more generally, the degree of uniformity with which individuals of a species are distributed in a stand. RS

Frost shattering - The mechanical disintegration or breakup of a rock or soil caused by the pressure exerted by freezing water in cracks or pores, or along bedding planes. Synonym - frost splitting, frost riving. GG

Frost wedging - refer to frost shattering.

Geomorphic surface - A geomorphic surface represents an episode of landscape development and consists of one or more landforms. A mappable part of the land surface that is defined in terms of morphology (relief, slope, aspect, etc.); origin (erosional, constructional, etc.); age (absolute, relative); and stability of component landforms. Compare - buried, relict. HP

Geomorphology - The science that treats the general configuration of the earth's surface; specifically the study of the classification, description, nature, origin, and development of landforms and their relationships to underlying structures, and of the history of geologic changes as recorded by these surface features. The term is especially applied to the genetic interpretation of landforms. GG '87

Glacial - Of or relating to the presence and activities of ice and glaciers, as glacial erosion. Pertaining to distinctive features and materials produced by or derived from glaciers and ice sheets, as glacial lakes. Pertaining to an ice age or region of glaciation. GG

Glacial drainage channel - A channel formed by an ice-marginal, englacial, or subglacial stream during glaciation. GG '87

Glacial outwash - See outwash

Glacial till - Refer to till glacial.

Glaciation - The formation, movement and recession of glaciers or ice sheets. A collective term for the geologic processes of glacial activity, including erosion and deposition, and the resulting effects of such action on the earth's surface. GG '87

Glacier - A large mass of ice formed, at least in part, on land by the compaction and recrystallization of snow, moving slowly by creep downslope or outward in all directions due to the stress of its own weight, and surviving from year to year. Included are small mountain glaciers as well as ice sheets continental in size, and ice shelves which float on the ocean but are fed in part by ice formed on land. GG '87

Glaciofluvial deposits - Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and may occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces. Compare - glacial drift and glacial outwash. HP

Gorge - (a) A narrow, deep valley with nearly vertical rocky walls, enclosed by mountains, smaller than a canyon, and more steep-sided than a ravine; especially a restricted, steep-walled part of a canyon. (b) A narrow defile or passage between hills or mountains. GG

Graben - An elongate, relatively depressed crustal unit or block that is bounded by faults on its long sides. It is a structural form that may or may not be geomorphologically expressed as a

rift valley. GG '87

Graminoid - All grasses (Gramineae) and grasslike plants, including sedges (Carex) and rushes (Juncus).

Ground moraine - An extensive, fairly even layer of till, having an undulating surface; a deposit of rock debris dragged along, in, on, and beneath a glacier and emplaced by processes including basal lodgement and release from downwasting stagnant ice (by ablation). HP

Gully - A very small channel with steep sides cut by running water and through which water ordinarily runs only after a rain or ice or snow melt. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to wheeled vehicles and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage. Compare - draw. HP

Habitat type - An aggregation of all land areas potentially capable of producing similar plant communities at climax. RS

Hanging valley - A tributary valley whose floor at the lower end is notably higher than the floor of the main valley in the area of junction. GG

Hill - A natural elevation of the land surface, rising as much as 300 meters above surrounding lowlands, usually of restricted summit areas (relative to a tableland) and having a well-defined outline; hill slopes generally exceed 15 percent. The distinction between a hill and a mountain is often dependent on local usage. Compare - foothills. HP

Hillslope - The steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of the hill. In descending order, the landform positions of a simple hillslope includes summit, shoulder, backslope, and toeslope. However, not all of these components are necessarily present in any given hillslope continuum. In addition, complex hillslopes may include two or more shoulder-to-toeslope sequences. HP

Holocene - The epoch of the Quaternary Period of geologic time, extending from the end of the Pleistocene Epoch (about 10 to 12 thousand years ago) to the present. HP

Hummock - A rounded or conical mound or other small elevation. Also, a slight rise of ground above a level surface. GG

Ice age - refer to Pleistocene

Ice wedge - A massive, generally wedge-shaped body with its apex pointing downward, composed of foliated or vertically banded, commonly white, ice. NRC

Ice wedge cast - A filling of sediment in the space formerly occupied by an ice wedge. NRC

Ice wedge polygon - Patterned grounded in areas of ice wedges. These polygons are commonly in poorly-drained areas and may be high- or low-centered. NRC

Igneous rock - Rock formed by solidification from a molten or partially molten state; major varieties include plutonic and volcanic rocks. Examples: andesite, basalt, granite. Compare - intrusive, extrusive. HP

Inclusion - An ecological type or miscellaneous land area within a delineation of a map unit that is not identified by the map unit name; i.e., is *not* one of the named components of the map unit. Such ecological types or miscellaneous areas are too small to be delineated separately without creating excessive map or legend detail, or occur too erratically to be considered a component, or are not identified by practical mapping mehtods.

Indicator plant - A plant whose presence or abundance indicates certain environmental conditions - generally used in the classification of a habitat type or phase. RS

Interbedded - Said of beds lying between or alternating with others of different character; esp. said of rock material or sediments laid down in sequence between other beds, such as "interbedded" sands and gravels. GG '87

Intermittent stream - A stream, or reach of a stream, that flows for protracted periods only when it receives ground-water discharge or long-continued contributions from melting snow or other surface and shallow subsurface sources. HP

Intermontane basin - A generic term for wide structural depressions between mountain ranges that are partly filled with alluvium and called

"valleys" in the vernacular. Intermontane basins may be drained internally (bolsoms) or externally (semi-bolson). FFP

Intrusive - Denoting igneous rocks derived from molten matter (magmas) that invaded pre-existing rocks and cooled below the surface of the earth. Compare - extrusive. HP

Kw factor - Soil erodibility factor which quantifies the susceptibility of soil detachment by water. It is a quantitative value, experimentally determined.

Karst - A type of topography that is formed in limestone, gypsum, and other rocks by dissolution, and that is characterized by sinkholes, caves, and underground drainage. GG '87

Kettle - A steep-sided bowl-shaped depression without surface drainage. It is in glacial drift deposits and believed to have formed by the melting of a large, detached block of stagnant ice buried in the glacial drift. HP

Knob - (a) A rounded eminence, as small hill or mountain; especially a prominent or isolated hill with steep sides, commonly found in the Southern United States. (b) A peak or other projection from the top of a hill or mountain. Also, a boulder or group of boulders or an area of resistant rocks protruding from the side of a hill or mountain. GG

Knoll - A small, low, rounded hill rising above adjacent landforms. HP

Krummholz - Enviromentally dwarfed forms of species that become treelike in favorable sites. A

Lacustrine deposit - Clastic sediments and chemical precipitates deposited in lakes. HP

Landform - Any physical, recognizable form or feature on the earth's surface, having a characteristic shape, and produced by natural causes; it includes major forms such as a plain, plateau, or mountain, and minor forms such as hill, valley, slope, esker, or dune. Taken together, the landforms make up empirical description of a terrain (land-surface form) class and interpretation of genetic factors ("natural causes"). HP

Landscape - All the natural features such as fields, hills, forests, water, etc., which distinguish one part of the earth's surface from another part. Usually that portion of land or territory which the eye can comprehend in a single view, including all its natural characteristics. GSST '87

Landslide - A mass-wasting process, and the landform produced, involving moderately rapid to rapid (greater than 30 centimeters per year) downslope transport, by means of gravitational stresses, of a mass of rock and regolith that may or may not be water saturated. HP

Lapilli - Non or slightly vesicular pyroclastics, 2.0 to 76 mm in at least one dimension, with an apparent specific gravity of 2.0 or more. KST '90

Lateral moraine - A ridge-like moraine carried on and deposited at the side margin of a valley glacier. It is composed chiefly of rock fragments derived from valley walls by glacial abrasion and plucking, or mass wasting. HP

Lava plain - A broad stretch of level or nearly level land, usually hundreds of square kilometers in extent, underlain by a relatively thin succession of basaltic lava flows resulting from fissure eruptions. GG

Lava plateau - A broad elevated tableland or flat-topped highland, many hundreds or thousands of square kilometers in extent, underlain by a thick succession of basaltic lava flows resulting from fissure eruptions. GG

Ledge - A narrow shelf or projection of rock, much longer than wide, formed on a rock wall or cliff face, as along a coast by differential wave action on softer rocks. A rocky outcrop; solid rock. An underwater ridge of rocks, especially near the shore; also a near shore reef. A quarry exposure or natural outcrop of a mineral deposit. GG

Levee [streams] - An artificial or natural embankment built along the margin of a watercourse or an arm of the sea, to protect land from inundation or to confine streamflow to its channel. Compare - natural levee. GG

Limestone - A sedimentary rock consisting chiefly (more than 50 percent) of calcium carbonate, primarily in the form of calcite. Limestones are usually formed by a combination of organic and inorganic processes and include

chemical and clastic (soluble and insoluble) constituents; many contain fossils. HP

Lithologic - (adjective) Pertaining to the physical character of a rock. HP

Loess - Fine-grained wind-deposited material, dominantly of silt size. HP

Marl - An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions (35 to 65 percent of each); formed primarily under freshwater lacustrine conditions, but varieties associated with more saline environments also occur. HP

Marsh - A water-saturated, poorly drained area, intermittently or permanently water-covered, having aquatic and grass-like vegetation, essentially without the formation of peat. GG

Mass movement - Dislodgement and downslope transport of earth (regolith and rock) material as a unit under direct gravitational stress. The process includes slow displacements such as creep and solifluction, and rapid movements such as landslides, rock slides, and falls, earthflows, debris flows, and avalanches. Agents of fluid transport (water, ice, air) may play a subordinate role in the process. HP

Mass wasting - See mass movement.

Meander [streams] - One of a series of regular freely developing sinuous curves, bends, loops, turns, or windings in the course of a stream. GG '87

Meander belt - The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangentially to the outer bends of active channel loops. Landform components of the meander-belt surface are produced by a combination of gradual (lateral and down-valley) migration of meander loops and avulsive channel shifts causing abrupt cut-offs of loop segments. Landforms flanking the sinuous stream channel include: point bars, abandoned meanders, meander scrolls, oxbow lakes, natural levees, and flood-plain splays. Meander belts may not exhibit prominent natural levee or splay forms. Flood plains or broad valleys may contain one or more abandoned meander belts in addition to the zone flanking the active stream channel. HP

Meandering channel - The term "meandering" should be restricted to loops with channel length more than 1.5 to 2 times the meander wave length. Meandering stream channels commonly have cross sections with low width-to-depth ratios, cohesive (fine-grained) bank materials, and low gradient. At a given bank-full discharge, meandering streams have gentler slopes, and deeper narrower, and more stable channel cross sections than braided streams. Compare - braided stream, flood-plain landforms. HP, Rhue, 1975

Meander scroll - One of a series of parallel, close fitting, arcuate ridges and troughs formed along the inner bank of a stream meander as the channel migrates laterally downvalley and toward the outer bank. Compare - meander belt. GG

Metamorphic rock - Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline. Examples: schist, gneiss, quartzite. HP

Metasediment - A sediment or sedimentary rock that shows evidence of having been subjected to metamorphism. GG '87

Microrelief - (a) Small, localized features, slight irregularities of a land surface superimposed on a larger landform, including such as low mounds, swales, and shallow pits. (b) Relief features that are too small to show on a topographic map; e.g., gullies, mounds, boulders, pinnacles. GG '87

Miocene - The epoch of the Tertiary Period of geologic time, immediately preceding the Pliocene Epoch (from approximately 5 million to 24 million years ago); also corresponding (time-stratigraphic) "series" of earth materials.

Moraine [glacial geology] - An accumulation of drift, with an initial topographic expression of its own, built chiefly by the direct action of glacial ice. Examples are end, ground, lateral, recessional, and terminal moraines. Compare - till. HP

Mound - A low rounded hill of earth, natural or artificial. GG

Mountain - A natural elevation of the land surface, rising more than 300 meters above surrounding lowlands, usually of restricted summit area (relative to a plateau), and generally

having steep sides (greater than 25 percent slope) with or without considerable bare-rock surface. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are primarily formed by deep-seated earth movements and/or volcanic action and secondarily by differential erosion. HP

Mountain slope - A part of a mountain between the summit and the foot. GG '87

Muck - Highly decomposed organic material in which the original plant parts are not recognizable. Contains more –mineral matter and is usually darker in color than peat. GSST

Mudflow [mass movement] - A general term for a mass movement landform and a process characterized by a flowing mass of predominantly fine-grained earth material (particles less than 2 mm comprising more than 50 percent of the solid matter) possessing a high degree of fluidity during movement. If more than half of the sold fraction consists of material larger than sand size, debris flow is preferred. GG '87

Mudstone - Sedimentary rock formed by induration of silt and clay in approximately equal proportions.

Natural levee - A long, broad low ridge or embankment of sand and coarse silt, built up by a stream on its flood plain and along both sides of its channel. They are wedge-shaped deposits, of the coarsest suspended-load material, that slope gently away from the stream. Compare meanderbelt. GG & HP

Outcrop - That part of a geologic formation or structure that appears at the surface of the earth. GG

Outwash [glacial geology] - (a) Stratified detritus (chiefly sand and gravel) removed or "washed out" from a glacier by melt-water streams and deposited in front of or beyond the end moraine or the margin of an active glacier. The coarser material is deposited nearer to the ice. (b) The meltwater of a glacier. GG '87

Outwash plain - An extensive lowland area of coarse textured, glaciofluvial material. An outwash plain is commonly smooth; where pitted, due to meltout of incorporated ice masses, it is generally low in relief. Compare - outwash, kettle. HP

Outwash terrace - A valley train deposit extending along a valley downstream from an outwash plain or terminal moraine; a flat-topped bank of outwash with an abrupt outer face. GG '87

Overthrust - A low angle thrust fault of large scale, with displacement generally measured in kilometers. GG

Oxbow - A closely looping stream meander having an extreme curvature such that only a neck of land is left between the two parts of the stream. A term used in New England for the land enclosed, or partly enclosed, within an oxbow. Compare - meander belt, oxbow lake. GG '87

Parallel drainage pattern - A drainage pattern in which the streams and their tributaries are regularly spaced and flow parallel or subparallel to one another over a considerable area. GG '87

Parent material - The unconsolidated and more or less chemically weathered mineral or organic matter from which the solum of soils is developed by pedogenic processes. GSST '87

Patterned ground - A general term for any ground surface exhibiting a discernibly ordered, more-or-less symmetrical, morphological pattern of ground and, where present, vegetation. Patterned ground is characteristic of, but not confined to permafrost regions or areas subjected to intense frost action. Patterned ground is classified by type of pattern and presence or absence of sorting and includes nonsorted and sorted circles, net, polygons, steps and stripes, garlands, and solifluction features. In permafrost regions, the most common macroform is the ice-wedge polygon and a common microform is the nonsorted circle. Stone polygons generally form on slopes of less than 8 percent, while garlands and stripes occur on slopes of 8 to 15 percent and more than 15 percent, respectively. NRC and HP

Peak - Sharp or rugged upward extension of a ridge chain, usually at the junction of two or more ridges; the prominent highest point of a summit area. HP

Peat - Unconsolidated soil material consisting

largely of undecomposed, or only slightly decomposed, organic matter accumulated under conditions of excessive moisture. GSST

Pediment - A gently sloping erosional surface developed at the foot of a receding hill or mountain slope. The surface may be essentially bare, exposing earth material that extends beneath adjacent uplands; or it may be thinly mantled with alluvium and colluvium, ultimately in transit from upland front to basin or valley lowland. In hill-foot slope terrain the mantle is designated "pedisediment". The term has been used in several geomorphic contexts: Pediments may be classed with respect to (a) landscape positions, for example, intermontane-basin piedmont or valley-border foot slope surfaces (respectively, apron and terrace pediments (Cooke and Warren, 1973)); (b) type of material eroded, bedrock or regolith; or (c) combinations of the above. Compare - Piedmont slope. HP

Pedisediment - A layer of sediment, eroded from the shoulder and back slope of an erosional slope, that lies on and is, or was, being transported across a pediment. FFP

Pedon - A three-dimensional body of soil with lateral dimensions large enough to permit the study of horizon shapes and relations. Its area ranges from 1 to 10 square meters. GSST '87

Perennial stream - A stream or reach of a stream that flows continuously throughout the year and whose surface is generally lower than the water table adjacent to the region adjoining the stream. Compare - Ephemeral stream, Intermittent stream. GG '87

Periflacial - Pertaining to processes, conditions, areas, climates, and topographic features occurring at the immediate margins of glaciers and ice sheets, and influenced by cold temperature of the ice. The term was originally introduced to designate the climate and related geologic features peripheral to ice sheets of the Pleistocene. HP

Permeability [soil] - The ease with which gases, liquids, or plant roots penetrate or pass through a bulk mass of soil or a layer of soil. GSST '87

Phase [plant] - A subdivison of an associaton and a habitat type representing a characteristic variation in climax vegetation and environmental conditions, respectively. RS

Phase [soil] - A utilitarian grouping of soils defined by soil or environmental features that are not class differentia used in U.S. system of soil taxonomy. Phase identifications are introduced into soil names by adding them to a taxon name as modifiers (example - Cryaquolls, poorly drained).

Physiographic province - A region where all parts are similar in geologic structure and climate, and where the geomorphic history, consequently, has been unified. Provinces differ significantly in the pattern of relief features on landforms. Examples are Piedmont and Great Plains provinces. GG

Piedmont - (adjective) Lying or formed at the base of a mountain or mountain range; e.g., a piedmont terrace or a piedmont pediment. (noun) An area, plain, slope, glacier, or other feature at the base of a mountain; e.g., a foothill or a bajada. In the United States, the Piedmont (noun) is a low plateau extending from New Jersey to Alabama and lying east of the Appalachian Mountains.

Piedmont slope - The dominant gentle slope at the foot of a mountain; generally used in terms of intermontane-basin terrain in arid to subhumid regions. Main components include (a) an erosional surface on bedrock adjacent to the receding mountain front (pediment); (b) a constructional surface comprising individual alluvial fans and interfan valleys, also near the mountain front; and (c) a distal complex of coalescent fans (bajada), and alluvial slopes without fan form. Piedmont slopes grade to basin-floor depressions with alluvial and temporary lake plains or to surfaces of through drainage. HP

Plain - An extensive lowland area that ranges from level to gently sloping or undulating. A plain has few or no prominent hills or valleys, and usually occurs at low elevation relative to surrounding areas (local relief generally less than 100 meters). GG

Plateau - An extensive upland mass with a relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands, and is separated from them on one or more sides by escarpments. A comparatively large part of a plateau surface is near summit level. Compare - plain. HP

Pliocene - The last epoch of the Tertiary Period of geologic time, following the Miocene Epoch and preceding the Pleistocene Epoch (approximately 5 to 2 million years ago); also, the corresponding (time-stratigraphic) "series" of earth materials. HP

Plutonic - Pertaining primarily to igneous rocks formed deep in the Earth's crust, but also including associated metamorphic rocks. GG

Point bar - One of a series of low, arcuate ridges of sand and gravel developed on the inside of a growing meander by the slow addition of individual accretions accompanying migration of the channel toward the outer bank. GG

Polygon - A type of patterned ground consisting of a closed, roughly equidimensional figure bounded by more or less straight sides; some sides may be irregular. Refer to patterned ground.

Compare - High center polygon, low center polygon, ice wedge polygon, nonsorted polygon. NRC

Potential natural vegetation - Vegetation which would exist without human-caused disturbances, and if the resultant plant succession were telescoped into a single point in time. ET

Pressure ridge - (a) ice-pushed ridge. (b) A ridge of glacier ice, produced by horizontal pressure associated with glacier flow. GG '87

Profile [soil]- A vertical section of the soil through all its horizons and extending into the C horizon. GSST '87

Pumice - A light-colored, vesicular, glassy rock commonly having the composition of rhyolite. It is often sufficiently buoyant to float on water. GG '87

Pyroclastic - Pertaining to fragmental materials produced by usually explosive, aerial ejection of clastic particles from a volcanic vent. Such materials may accumulate on land or under water. HP

Quaternary - The period of the Cenozoic Era of geologic time, extending from the end of the Tertiary Period (about 2 million years ago) to the present and comprising two epochs, the Pleistocene (Ice Age) and Holocene (Recent); also the corresponding (time-stratigraphic) "system" of earth materials. GG '87

Ravine - A small stream channel; narrow, steep-sided, and commonly V-shaped in cross section; and larger than a gully. General synonym - gulch. Compare - draw. HP

Relict - Pertaining to surface landscape features, e.g., landforms, geomorphic surfaces, and paleosols that have never been buried and yet are predominantly products of past environments. Compare - exhumed. HP

Relief - The relative difference in elevation between the hilltops or mountain summits and the lowlands or valleys of a given region. GG '87

Remnant - See Erosion remnant.

Residuum (residual soil material) - unconsolidated, weathered, or partly weathered mineral material that accumulates by disintegration of bedrock in place. Compare saprolite, regolith, colluvium. HP

Ridge - A long, narrow elevation of the land surface, usually sharp crested with steep sides and forming an extended upland between valleys. The term is used in areas of both hill and mountain relief. HP

Rim - The border, margin, edge, or face of a landform, such as the curved brim surrounding the top part of a crater or caldera; specif. the rimrock of a plateau or canyon. GG '87

Riparian - Vegetation bordering watercourses, lakes, or swamps. RS

Riser - The vertical or steeply sloping surface of one of a series of natural steplike landforms, as those of a glacial stairway or of successive stream terraces. GG '87

Rock glacier - A mass of poorly sorted angular boulders and fine material, with interstitial ice a meter or so below the surface (ice-cemented) or containing a buried ice glacier (ice-cored). It occurs in a permafrost area, and is derived from a cirque wall or other steep cliff. Rock glaciers have the general appearance and slow movement of small valley glaciers, ranging from a few hundred meters to several kilometers in length, and having a distal area marked by a

series of transverse arcuate ridges. GG '87

Rotational landslide - A slide in which shearing takes place on a well defined, curved shear surface, concave upward, producing a backward rotation in the displaced mass. It may be single, successive (repeated up- and down-slope), or multiple (as the number of slide components increases). GG '87

Rubble - All accumulation of loose angular rock fragments, commonly overlying outcropping rock; the unconsolidated equivalent of a breccia. GG

Rubble land - Areas with 90% or more of the surface covered with stones and boulders.

Saddle - A low point on a ridge or interfluve, generally a divide (pass, col) between the heads of streams flowing in opposite directions. HP

Sandstone - Sedimentary rock containing dominantly sand-size clastic particles. HP

Saprolite - (Provisional definition) Soft, friable, isovolumetrically weathered bedrock that retains the fabric and structure of the parent rock. (Colman and Dethier, 1986). In soil science, the term saprolite was formerly applied to any unconsolidated residual material underlying the soil and grading to hard bedrock below. Compare - residuum. HP

Scarp - An escarpment, cliff, or steep slope of some extent along the margin of a plateau, mesa, terrace, or bench. A scarp may be of any height. GG

Scoria - Vesicular, cindery crust on the surface of andesitic or basaltic lava, the vesicular nature of which is due to the escape of volcanic gases before solidification; it is usually heavier, darker, and more crystalline than pumice. Synonym - cinder. HP

Scour (geomorphology) - (a) The powerful and concentrated clearing and digging action of flowing air, water, or ice, especially the downward erosion by stream water in sweeping away mud and silt on the outside curve of a bend, or during the time of a flood. (b) A place in a stream bed swept (scoured) by running water, generally leaving a gravel bottom. GG

Scree - An accumulation of rock debris or a sheet of coarse debris mantling a slope. Scree is not a synonym of talus, as scree includes loose material on slopes without cliffs. HP

Sediment - Earthy material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by water, wind, ice or mass-wasting and has come to rest on the earth's surface either above or below sea level. Sediment in a broad sense also includes materials precipitated from solution or emplaced by explosive volcanism, as well as organic remains, e.g., peat that has not been subject to appreciable transport. HP

Sedimentary rock - A consolidated deposit of clastic particles, chemical precipitates, and organic remains accumulated at or near the surface of the earth under "normal" low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, glacial drift, and eolian, lacustrine, marine deposits, e.g., sandstone, siltstone, mudstone, clay-stone, shale, conglomerate, limestone, dolomite, coal, etc. Compare - sediment. HP

Seep - n. A generally small area, where water or oil percolates slowly to the land surface. For water, it may be considered as a seepage spring, but it is used by some for flows too small to be considered as springs. GG '87

Seral - A species or community that is replaced by another species or community as succession progresses. RS

Series [plant] - In forest site classification, a group of habitat types having the same climax dominant tree species. For example the Pinus flexilis series contains the PIFL/HEKI, PIFL/FEID, PIFL/CELE, AND PIFL/JUCO h.t.'s. RS

Series [soil] - The lowest category of U.S. system of soil taxonomy; a conceptualized class of soil bodies (polypedons that have limits and ranges more restrictive than all higher taxa. Soil series are commonly used to name dominant or codominant polypedons represented on detailed soil maps. The soil series serve as a major vehicle to transfer soil information and research knowledge from one soil area to another.

Shale - Sedimentary rock formed by induration of a clay, silty clay, or silty clay loam deposit and having the tendency to split into thin layers, i.e.,

fissility. HP

Shield volcano - A broad, gently sloping volcano cone of flat domical shape, built chiefly of overlapping and interfingering basaltic lava flows.

Shoulder - The landform position that forms the uppermost inclined surface near the top of a hillslope. It comprises the transition zone from backslope to summit. The surface is dominantly convex in profile and erosional in origin. Compare - summit, footslope, and toeslope. HP

Side slope - The slope bounding a drainageway and lying between the drainageway and the adjacent interfluve. It is generally linear along the slope width and overland flow is parallel down the slope. Ruhe, 1975

Siltstone - Sedimentary rock containing dominantly silt-size clastic particles.

Sinkhole - A closed depression formed either by solution of the surficial bedrock, e.g., limestone, gypsum, salt, or by collapse of underlying caves. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography. Synonym - doline. HP

Slide [mass movement] - (a) A mass movement or descent resulting from failure of earth, snow, or rock under shear stress along one or several surfaces that are either visible or may reasonably be inferred; e.g., landslide; snowslide; rockslide. The moving mass may or may not be greatly deformed, and movement may be rotational or planar. A slide can result from lateral erosion, lateral pressures, weight of overlying material, accumulation of moisture, earthquakes, expansion owing to freeze-thaw of water in cracks, regional tilting, undermining, and human agencies. (b) The track of bare rock or furrowed earth left by a slide. (c) The mass of material moved in or deposited by a slide. GG '87

Slope alluvium - Sediment gradually transported on mountain or hill slopes primarily by alluvial processes and characterized by particle sorting. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of coarse fragments and may be separated by stone lines. Sorting of rounded or subrounded pebbles or cobbles and burnished peds contrast with unsorted colluvial deposits. HP

Slough - (a) A piece of soft, miry, muddy or waterlogged ground, a place of deep mud. (b) A term used, especially in the Mississippi Valley, for a creek or sluggish body of water in a tidal flat, bottomland, or coastal marshland. (c) A section of an abandoned river channel containing stagnant water and occurring in a flood plain or delta. GG

Slump - (a) A landslide characterized by a shearing and rotary movement of a generally independent mass of rock or earth along a curved slip surface (concave upward) and about an axis parallel to the slope from which it descends, and by backward tilting of the mass with respect to that slope so that the slump surface often exhibits a reversed slope facing uphill. (b) The mass of material slipped down during, or produced by a slump. GG '87

Slump block - The mass of material torn away as a coherent unit during slumping. GG '87

Soil Creep - (Use **Creep**)

Solifluction - Slow, viscous downslope flow of water-saturated regolith. Rates of flow vary widely. The presence of frozen substrate or even freezing and thawing is not implied in the original definition. However, one component of solifluction can be creep of frozen ground. The term is commonly applied to processes operating in both seasonal frost and permafrost areas. NRC

Spur [geomorphology] - A subordinate ridge or lesser elevation that projects sharply from the crest or side of a hill, mountain, or other prominent range of hills or mountains. GG '87

Spur ridge (use **Spur**)

Stand - An existing plant community that is relatively uniform in composition, structure, and habitat conditions; thus it may serve as a local example of a community type on a habitat type. RS

Stone line - A sheet-like lag concentration of coarse fragments in surficial sediments. In cross section, the line may be marked only be scattered fragments or it may be a discrete layer of fragments. The fragments are more often pebbles or cobbles than stones. A stone line generally overlies material that was subject to weathering, soil formation, and erosion before

deposition of the overlying material. Many stone lines seem to be buried erosion pavements, originally formed by running water on the land surface and concurrently covered by surficial sediment. HP, Ruhe, 1975

Stratified - (adjective) Formed, arranged, or laid down in layers. The term refers to geologic deposits. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata. HP

Stratigraphy - The branch of geology that deals with the definition and interpretation of layered earth materials; the conditions of their formation; their character, arrangement, sequence, age, and distribution; and especially their correlation by the use of fossils and other means. The term is applied both to the sum of the characteristics listed and a study of these characteristics. HP

Stream channel - See channel.

Stream terrace - One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream, and representing the dissected remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of erosion or deposition. Erosional surfaces cut into bedrock and thinly mantled with stream deposits (alluvium) are designated "strath terraces". Remnants of constructional valley floors thickly mantled with alluvium are termed alluvial terraces. Compare - terrace. HP

Structural bench (or bench) - A platform-type, nearly level to gently inclined erosional surface developed on resistant strats in areas where valleys are cut in alternating strong and weak layers with an essentially horizontal attitude. Structural benches, in contrast to stream terraces, have no geomorphic implication of former, partial erosion cycles and base-level controls, nor do they represent a stage of flood-plain development following an episode of valley trenching. HP

Succession - The progressive changes in plant communities toward climax, with qualification, may refer to progressive changes in a direction other than climax. RS

Summit - (a) The topographically highest landform position of a hillslope profile. (b) A general term for the top, or highest level of a landform such as a hill, mountain, or tableland. It usually refers to a high interfluve area of gentler slope that is flanked by steeper hillsopes, e.g., mountain fronts or tableland escarpments. Compare - shoulder, footslope, and toeslope. HP

Swale - (a) A slight depression, sometimes swampy, in the midst of generally level land. (b) A shallow depression in an undulating ground moraine due to uneven glacial deposition. (c) A long, narrow, generally shallow, trough-like depression between two beach ridges, and aligned roughly parallel to the coastline. GG '87

T factor - The T factor is the soil loss tolerance. It is defined as the maximum amount of erosion at which the quality of a soil as a medium for plant growth can be maintained. Erosion losses are estimated by USLE and RUSLE.

Tableland - A general term for a board upland mass with nearly level or undulating summit area of large extent and steep side slopes descending to surrounding lowlands. See also plateaus and mesas. HP

Talus - Rock fragments of any size or shape (usually coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding. Compare - colluvium, mass movement, scree. GG '87

Taxon - In the context of soil survey, a class at any categorical level in the U.S. system of soil taxonomy. GSST '87

Terrace [geomorphology] - A step-like surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, or lake or sea shore. The term is usually applied to both the relatively flat summit surface (platform, tread), cut or built by stream or wave action, and the steeper descending slope (scarp, riser), graded to a lower base level of erosion. Compare - stream terrace. HP

Terrace slope - see **Riser**

Terracettes - Small, irregular step-like forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may or

may not be induced by trampling of livestock such as sheep or cattle. Synonym - catsteps, sheep or cattle tracks, soil ripples. HP

Terrane - A fault-bounded body of rock of regional extent, characterized by a geologic history different from that of contiguous terranes. A terrane is generally considered to be a discrete allochthonous fragment of oceanic or continental material added to a craton at an active margin by accretion. GG '87

Tertiary - The period of the Cenozoic Era of geologic time (approximately from 65 to 2 million years ago). Epoch/series subdivisions comprise, in order of increasing age, Pliocene, Miocene, Oligocene, Eocene, and Paleocene. HP

Till [glacial] - Dominantly unsorted and unstratified drift, deposited by a glacier, and consisting of a heterogeneous mixture of clay, silt, sand, gavel, stones, and boulders. Compare - ablation till, lodgement till, glacial drift, basal till, moraine. GG

Till plain - An extensive flat to undulating surface underlain by till. Compare - till, ground moraine. HP

Toeslope - The landform position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear; and are constructional surfaces forming the distal part of a hill slope continuum that grades to valley or closed-depression floors. Compare - shoulder, backslope, footslope, valley floor. HP

Topography - The relative position and elevations of the natural or manmade features of an area that describe the configuration of its surface.

Trough [geomorphology] - (a) Any long, narrow depression in the earth's surface, such as one between hills or with no surface outlet for drainage; especially a broad, elongate U-shaped valley, such as a glacial trough or a trench. (b) The channel in which a stream flows.

Tuff - A compacted deposit that is 50 percent or more volcanic ash and dust.

Tuff hummock - A hummock consisting of vegetation and organic matter with or without a core of mineral soil or stones. NRC

Undifferentiated group [map unit] - A kind of map unit comprised of delineations composed of one or the others, or all of two or more component ecological types that have the same or very similar use and management for specified common uses. The locations, shapes, or size of individual bodies of a component soil in a delineation cannot be known exactly, even ignoring inclusions, because one or all of the component ecological types may occur in any delineation.

Uplift [tectonic] - A structurally high area in the earth's crust, produced by positive movements that raise or upthrust the rocks, as in a dome or arch.

Valley - An elongate, relatively large, externally drained depression of the Earth's surface that is primarily developed by stream erosion. Compare - basin intermontane. HP

Valley fill - The unconsolidated sediment deposited by any agent (water, wind, ice, mass wasting) so as to fill or partly fill a valley. HP

Valley floor - A general term for the nearly level to gently sloping, lowest surface of a valley. Component landforms include axial stream channels, the flood plain, and, in some areas, low terrace surfaces that may be subject to flooding from tributary streams. Compare - floodplain landforms, braided channel. HP

Vitric - Pyroclastic material that is more than 75% glass. GG '87

Volcanic - Pertaining to (a) the deep seated (igneous) processes by which magma and associated gasses rise through the crust and are

extruded onto the earth's surface and into the atmosphere, and (b) the structures, rocks and landforms produced. HP

Volcanic cone - A conical hill of lava and/or pyroclastics that is built up around a volcanic vent. GG

Volcanic dome - A steep-sided, rounded extrusion of highly viscous lava squeezed out from a volcano, and forming a dome-shaped or bulbous mass of congealed lava above and around the volcanic vent. GG '87

Water table - The upper surface of ground water

or that level in the ground where the water is at atmospheric pressure. GSST '87

Weathering - All physical, chemical, and biological changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents with essentially no transport of the altered material. These changes result in disintegration and decomposition of the material. Compare - regolith, residuum, saprolite. HP

References

A - Arno, Stephen F. 1984. Timberline: Mountain and Artic Forest Frontiers.Mountaineers, Seattle, WA. 304p.

BB - Barbour, Michael G. and Billings, William Dwight (editors). 1988. North AmericanTerrestrial Vegetation. Cambridge University Press, New York, NY 434p.

ET - Forest Service Staff. 1993. Ecological Type Classification Workshop Denver, Colorado Nov. 29 - Dec. 2, 1993. 11p.

FFP - Peterson, F.F. 1981. Landforms of the Basin and Range Province defined for soil survey. Nevada Agricultural Experiment Station Technical Bulletin No. 28, Reno, NV. 52p.

FSH - Forest Service Staff. 1991. Ecological Classification and Inventory Handbook. Washington Office Amendment 2090.11-91-1. Pg 2 of 3.

GG - Bates, R.L., and Jackson, J.A. (eds) 1980. Glossary of geology, 2nd Ed. American Geological Institute, Alexandria, VA. 749p.

GG '87 - Bates, R.L., and Jackson, J.A. (eds) 1987. Glossary of geology, 3rd Ed. American Geological Institute, Alexandria, VA. 788p.

GSST - Soil Science Society of America. 1979. Glossary of Soil Science terms. Soil Science Society of America, Madison, WI. 37p.

GSST '87 - Soil Science Society of American. 1987. Glossary of Soil Science terms. Soil Science Society of America, Madison, WI. 44p.

HP - Hawley, J.W., and Parsons, R.B. 1980. Glossary of selected geomorphic and geologic terms. Mimeo. USDA Soil Conservation Service, West National Technical Center, Portland, OR. 30p.

KST - Soil Management Support Services. 1990. Keys to Soil Taxonomy, 4th Ed. SMSS Technical Monograph No. 19, Virginia Polytechnical Institute and State University. 422p.

NRC - National Research Council of Canada. 1988. Glossary of permafrost and related ground ice terms. Associate Committee Geotechnical Research, Technical Memorandum 142; 156p.

PEA - Avers, P.E. and Schlatter, E.F. 1991. Ecosystem Classification and Mapping on National Forests. Proceeds of the 1991 Symposium on Systems Analysis in Forest Resources. pg 63-69

RD - Raymond B. Davis, (personal communication).

RS - Steele, Robert, Cooper, Stephen V., Ondov, David M., Roberts, David W. and Pfister, Robert D. 1983. Forest habitat types of eastern Idaho-western Wyoming. Gen. Tech. Rep. INT-144. Ogden,UT: US Dept. of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 122p.